The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

VOL. XIX. No. 476 AUGUST 11, 1928 Prepaid Annual Subscription: United Kingdom, £1.1.0; Abroad, £1.5.0.

Contents

PAGE

EDITORIAL NOTES: International Chemistry; The Science of Trade Promotion; Ethyl Petrol Inquiry; Analysts' Fees 115
Production and Uses of Stoneware Chemical Plant.—II, by B. M. Pearson 117
The Chemical Tour to Canada and the United States 119
Correspondence: Science and National Progress 120
"C.A." Queries; Chemical Matters in Parliament; Appointments Vacant 122
From Week to Week 123
References to Current Literature 124
Patent Literature 125
Weekly Chemical Prices and Market Reports 128
Company News; New Trade Marks; Chemical Trade Inquiries 132
Commercial Intelligence; New Companies Registered 134

DYESTUFFS MONTHLY SUPPLEMENT: Alizarine-Sulphonic Ester-A Water-Soluble Alizarine Preparation; Basic Intermediates for Dyestuffs: XXI—β-Naphthol, by "Consultant," etc. 9–16

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

The prepaid subscription to THE CHEMICAL AGE *is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders and Postal Orders should be made payable to Benn Brothers, Ltd.*

Editorial and General Offices: Bouverie House, 154, Fleet Street, London, E.C.4.

Telegrams: "Allangas, Fleet, London." Telephone: City 0244

International Chemistry

THE growth of the international spirit in chemical science and industry finds one more illustration in the large party of British chemical engineers, works and research chemists, etc., who are leaving this country at the end of this week—some from Southampton and some from Liverpool—for a tour of Canada and the United States. Two years ago the American chemical engineers paid a very pleasant visit to this country under the leadership of Dr. Rease, of the Du Pont Co. It was regarded rather as a "lightning" tour, but was extremely well handled, and now the American visitors, in the character of hosts, are organising a delightful hustle which threatens to outdo the British visit both in pace and space.

The British chemical engineers, who have cordially accepted the American return invitation, will be accompanied by a large delegation from the Society of Chemical Industry, who, on the completion of a fortnight's land cruise, will have a week's programme of their own in New York. The idea is to combine a real overseas holiday with an educational tour of chemical and engineering works, during which something will be seen not only of American methods but of the American business man and scientist and of his psychology and outlook. The conferences will not be of too strenuous a character. At Niagara Falls the British and American chemical engineers will hold a few joint sessions, and in New York the Society of Chemical Industry will hold its annual meeting. The feature of the latter will be Mr. F. H. Carr's presidential address on the completion of two years in the chair, and the election (in accordance with custom when the Society meets overseas) of an American chemist, Mr. Arthur D. Little, as his successor. Those who have a few days to spare may go on to the annual meetings of the American Chemical Society at Swampscott, which follow the New York meetings.

Glancing through the list of names, it will be seen at once what a practical party it is that is going out. There are no mere figureheads; all are either works or research chemists, or consulting chemists or engineers, or managers of chemical works, or heads of important businesses. Sir Alexander Gibb (president) and Professor Hinchley (secretary) will be the heads of the chemical engineers' section; Mr. F. H. Carr (president) will represent the Society of Chemical Industry; and Professor Jocelyn Thorpe will add to the representative character of the party as president of the Chemical Society. This will be the largest overseas chemical tour ever attempted in this country, and it is notable that so large a proportion of the 140 members should be men engaged in important work but more or less unknown to the public. Many of these, again, are going out as delegates from their own firms, Imperial Chemical Industries, for example, sending out over forty. The benefits of such intimate interchange of acquaintanceship and experience cannot fail to be equally beneficial and enjoyable to both sides, and the habit of international exchange will be sensibly strengthened.

Those who are going out to the States for the first time will probably have to revise their estimate of men and conditions in many ways. It is customary, in some quarters, to think of the "Yankee" as a rather noisy and boastful type. The tourists, on the contrary, will find American officials and business men, in the main, quiet-spoken, quiet-mannered, courteous people. In addition, in spite of his commercial energy and love of large scale enterprise, the American retains a strain of almost childlike simplicity—sensitive to affront, but equally sensitive to kindness and with a full capacity for friendship—and then the tourists will probably find a long time hence that their casual travel acquaintances have changed into permanent friends.

The arrangements on both sides are in competent hands, and a very pleasant tour is in prospect, of which an account will be published in THE CHEMICAL AGE

from our special correspondent. With their usual foresight the chemical engineers have drawn up a list of useful hints for the party. There is a subtle humour in the note on clothing, intended to provide for cold weather on the ship and for the very hot weather that may be experienced in New York; it suggests the practical engineer's way of making the best of both worlds. Never before in print, though sometimes in Club table talk, have we met a reference to the "Lord Kelvin" method of meeting variable conditions of weather by augmenting or diminishing one's underwear. In other words, two light garments are much more convenient than one heavy one. It almost recalls Tom Hayward's story of a wintry county cricket match in May in which he wore two sweaters, two pairs of trousers and two pairs of socks. The conditions, however, one hopes, will call for nothing quite so drastic as this.

The Science of Trade Promotion

OUR numerous visitors to Bouverie House may have noticed of late on one of the floors the announcement, "Trade Promotion Trust, Ltd.," without quite appreciating what the title meant. Its meaning is now made quite clear in a statement which Sir Ernest Benn contributes to the current issue of *The Retail Credit World*. The object of the company is to assist selected hire-purchase traders to secure a fair proportion of this class of credit business which might otherwise go elsewhere. The board consists of Sir Ernest Benn (chairman), Sir Donald Maclean, Mr. F. H. Elliott, Mr. A. R. Pain, and Mr. C. D. Ross. The main object of the Trust is to ensure that the trader retains his personal contact all the time with his customer, and thus encourages that customer to continue to do business with him. It does not come into direct contact with the credit trader's customer, provided that the conditions of business are observed, and no restrictions whatever are placed on the trader's usual business methods. The amount of the first payment by the customer is left to the discretion of the trader, who retains it, and, in addition, receives from the Trust an immediate advance in cash of 66⅔ per cent. of the balance. This advance relieves him of any possible financial embarrassment, and enables him to go into the manufacturing and wholesale markets to replenish his stock on the best cash terms. It is left to the trader himself to collect the instalments, and thus retain an intimate connection with his client, and to continue to build up goodwill.

Sir Ernest Benn, in support of this new financial movement, points to the astonishing development of the motor industry both here and in America, and claims it to be as much due to the perfection of financial machinery as to the invention of mechanical devices for producing cars themselves. Instalment buying or time-payment is a comparatively recent development here, but has already made enormous strides; as Sir Ernest points out, it is receiving the recognition of the banks and becoming respectable, and before long it will be not only respectable but usual and even commonplace. "We are," as he says, "at the beginning of a new financial structure which may well prove to be as important to the commerce of the next hundred years as the structure of banking, scarcely a century old, has been to the commerce of the last hundred years." It is this promising movement which the Trust has been formed to promote, and in which it is likely to take an important part.

The Ethyl Petrol Report

THE interim report of the departmental committee on ethyl petrol is now issued as a white paper (H.M. Stationery Office, 4d.). The conclusions, signed among others by Mr. A. Chaston Chapman, Dr. C. H. Lander, and Sir R. Robertson, support the finding of the United States Government Committee that there were no good grounds for prohibiting the use of ethyl petrol under proper regulations, and add that further experience since the presentation of that finding confirms this view. While considering that the use of ethyl petrol as a motor fuel is no more dangerous to health than the use of ordinary petrol, the committee recommend precautions in its use, and in particular, emphasise the warning that ethyl petrol should be used only as a motor fuel and not for such purposes as cooking or cleaning. Adequate ventilation of all garages, whether ethyl petrol is used or not, is regarded as a matter of considerable importance, and the danger from carbon monoxide in an unventilated garage is described by the committee as very serious.

Analytical Fees

FROM time to time, in the last few years, the question of raising the fees paid to public analysts by bodies employing them has been discussed. The episode which occurred this week in the House of Commons (and which is reported on another page) is likely to bring the subject once more to the front. It is true that the question raised was not that of the fees paid to public analysts, but to the Government Chemist for analytical work, but the attitude taken by the Financial Secretary to the Treasury was very interesting. Dealing with the question of the increase in these fees which took place some little time ago, he indicated that the Government considered that the fee now paid was perfectly fair, in view of the skill and accuracy of the work required. Actually this reply does not involve the work of the public analysts, nor has the Government taken up any new position with regard to the latter. But the official statement made was an indication that in Government circles first-class analytical work is held in high respect, and the public analysts will probably not fail to drive this point home when dealing with local authorities by whom they are employed.

The Calendar

Sep. 3–7	Society of Chemical Industry: Annual General Meeting.	New York, U.S.A.
5–12	British Association Meeting.	Glasgow.
20–22	Mining Institute of Scotland: Excursion to Lochaber Hydro-Electric Works, Fort William.	
24–Oct. 6	World Power Conference. Fuel Conference.	Imperial Institute, London.
28–29	Faraday Society: General Discussion on Homogeneous Catalysis.	University, Cambridgen.
Nov 19–22	Second International Conference on Bituminous Coal.	Pittsburgh.

Production and Uses of Stoneware Chemical Plant.—(II)

By B. M. Pearson

In the following, our contributor continues his account of this important subject, of which the first part appeared last week. This week, attention is paid in particular to the properties of the stoneware.

AFTER thorough drying the ware is fired in the kiln. Direct-fired kilns of the circular down-draught or beehive type are employed for the purpose; they are about 30 feet in diameter and are intermittent in operation, i.e., the kiln is charged with green unfired ware, burnt, allowed to cool, emptied, and the cycle of operations then repeated. The kiln is fired from fire-boxes set at equal distances round the outside. About twelve grates or fire-boxes will be used on a 30-ft. kiln. The fire passes downwards through the ware, through a false floor, into the stack.

Firing the Dried Ware

The kiln-firing of chemical stoneware is again very difficult, and necessitates great experience on the part of the operatives. The firing is taken up to 1,300° C., and may be performed in two weeks, including the cooling of the kiln. Large kilns will require about three weeks for a firing cycle—three days for setting and discharge, four days for heating, and thirteen days for cooling. The ware is piled into the kiln with the object of getting as much as possible set, consistent with getting it out again in perfect condition; owing to the diversity of shapes, this is no easy task. The slow cooling of the ware produces tough strong structures, which will withstand considerable rough treatment. The firing process should be controlled from start to finish by means of pyrometers.

The periodic kiln is very inefficient and wasteful in fuel, and it is in eresting to note that a continuous chamber kiln has been in successful operation for some years at the New Jersey works of the General Ceramic Co. The tunnel car kiln would also appear to offer advantages for this purpose. One of the great advantages of the tunnel kiln is the easy and convenient setting of the ware. It was mentioned above that the setting of this ware is very difficult in ordinary kilns. The tunnel kiln also offers very accurate temperature control, effects a considerable saving of labour and fuel, and lends itself to scientific factory layout.

Glazing the Ware

Just before the maximum kiln temperature is reached, common salt is thrown into the fire-holes; the salt volatilises and reaches every part of the kiln. Reaction takes place between the salt vapour and the clay, and a sodium aluminium silicate is formed on the surface of the ware, which, being fairly fusible at the kiln temperature, glazes and gives a smooth appearance and a neat look to the ware. When the kiln is cooled off, the ware is removed from the kiln, taken to the warehouse, inspected, tested, checked, and packed for shipment. The general kiln atmosphere is a reducing one, and the reduction of the traces of iron in the clay imparts a bluish-grey colour to the body, and a chocolate colour to the glaze. An oxidising kiln atmosphere produces yellowish ware with a golden yellow glaze. The choice of suitable raw materials for the body, free from iron, and firing in a muffle gives white ware, which may be applied for pharmaceutical and other special purposes.

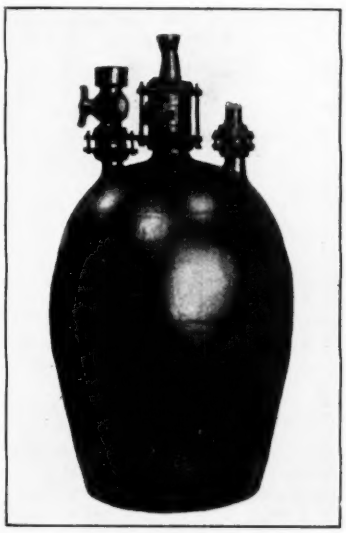
If necessary, the fired chemical stoneware may be finished by grinding. Owing to the dense structure the material is quite hard, and carborundum is the medium generally employed for the grinding.

Nature and Properties of Chemical Stoneware

Chemical stoneware properly manufactured is in itself resistant, and does not rely on a glaze or veneer. The usual glaze is given merely as a finish to provide a smooth surface to the ware; the glaze may even, on occasion, be disadvantageous, as it is definitely less resistant than the body. In practice, unglazed ware is quite often specified; in such cases, the body must be, of course, still denser than usual. The advantage of chemical stoneware, it will be perceived, lies in the uniform structure of the body, which enables it to be used to absolutely the best advantage. Regarding the salt glaze, a composition is approximately: SiO_2, 66·8 per cent.; Al_2O_3, 20·6 per cent.; and Na_2O, 12·5 per cent. This glaze exhibits no tendency to peel or craze, and is firmly attached to the body, having more or less the same physical constants.

For resistance to acids, chemical stoneware may be said to be the most satisfactory material yet produced; it is resistant to all acids except hydrofluoric; the concentration of the acid is also without influence. Consequently, chemical stoneware finds a large application in acid manufacturing industries, vinegar plants, acid handling and storage systems, etc. These uses will be referred to in detail later.

Chemical stoneware used to be seriously limited as regards the size of the article. This point has now been entirely



STONEWARE ACID EGG (UP TO 2,000 LITRES CAPACITY).

overcome for most purposes. Vessels of up to 1,000 gallons and over are now regularly produced. In America, an acid egg of 1,200-gallons capacity has been produced, and a 1,500-gallon capacity stoneware vessel has been exhibited at Dresden. A rather cramping limitation on the use of chemical stoneware was, formerly, the heating difficulty; with chemical stoneware, heating by direct flame cannot safely be done. In these days of heating by water, oil, and sand baths, by electrical methods, and by steam (either by injecting steam into the solution by means of perforated chemical stoneware pipes, or by employing stoneware steam heating coils), no difficulty is presented in this connection.

Tensile Strength

The tensile strength of chemical stoneware is one of its most important properties. The tensile strength will, on the average, range from 1,000-2,000 lb. per sq. in. The practice of the General Ceramic Co. of New York in this connection is interesting. The body used for acid pipe lines has a tensile strength of 1,000 lb. per square inch, the body used for electrolytic work has a value of 1,700 lb. per sq. in., and the bodies used for pump and exhaust fan impellers and for blowcases are much higher. An 18 in. impeller has been tested to 4,500 r.p.m. without bursting it, *i.e.*, a peripheral speed of over 21,000 ft. per minute. Although the ware has a high tensile strength, it is advisable, where pressure vessels are used, to case them in sheet steel. The physical properties of a number of chemical stonewares are tabulated below.

Search through the catalogue of any large manufacturer of chemical stoneware reveals an enormous variety of available shapes and apparatus. It may be said that at this stage of its development almost anything mechanically possible can

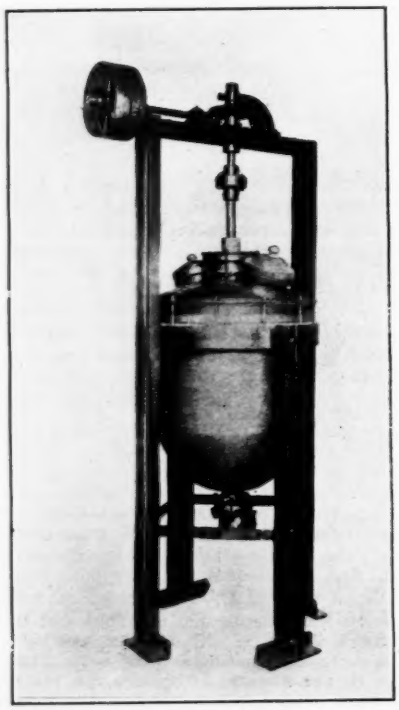
be and is made. Chemical stoneware finds considerable application in plants making acids, and in the industries utilising acids, such as explosives, dyestuffs, fertilisers, pharmaceuticals, also in the manufacture of alkalies, vinegar, foodstuffs, and mineral products, in plating, lithographing, developing and pickling processes, in the storage battery, electrical and electro-chemical industries, etc. Practically any shape that can be made in metal or any other structural material can be duplicated in stoneware if due consideration is given to the physical properties of the ware. Stoneware apparatus for special purposes is made up from blue prints, and constructed according to customers' specifications.

SOME PHYSICAL PROPERTIES OF CHEMICAL STONEWARE.

Body.	Specific gravity.	Porosity.	Porosity water absorption.	Crushing strength.	Tensile strength kg/cm².	Bending moment.	Modulus of elasticity.	Linear coefficient of expansion.	Specific heat between 170° and 100° C.	Co-efficient of thermal resistance.	Thermal conductivity.	Temp. gradient.
1	2·649	18·2	2·50	—	—	—	—	— 10^{-6}	0·191	—	0·95	2·760
2	2·537	13·5	0·28	—	100	416	4,455	4·5 10^{-6}	0·187	3·9	1·05	2·303
3	2·510	12·8	0·03	—	102	395	4,416	4·9	0·185	3·46	0·90	1·938
4	2·537	15·2	0·27	—	99	404	4,328	4·5	0·186	3·7	0·90	1·908
5	2·485	11·8	0·27	—	97	262	5,372	4·3	0·185	3·12	0·90	1·958
6	2·532	18·1	3·19	3,248	63	280	4,175	—	0·186	—	—	—
7	2·559	18·1	4·41	3,636	87	246	4,339	—	0·185	—	—	—
8	2·548	17·9	5·10	5,356	66	234	4,189	—	0·187	—	—	—
9	2·599	16·2	3·11	—	74	271	4,393	—	0·187	—	0·90	—
10	2·459	13·4	—	—	—	—	—	—	—	—	—	—
11	2·444	13·0	—	—	—	—	—	—	—	—	—	—
12	2·459	7·8	—	—	—	—	—	—	—	—	—	1·884

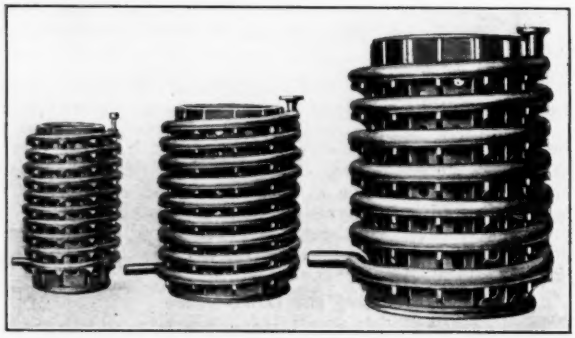
Types of Ware

There are a large number of more or less standard shapes in general use, such as tanks, jars, towers and tower packing;



STONEWARE STIRRING KETTLE COMPLETE WITH FRAME AND DRIVING GEAR.

ceramic linings for tanks, vats, etc., including bricks and tiles; blocks for constructional purposes, such as tanks, towers, vats, etc.; acid eggs and elevating apparatus for acids; kettles and autoclaves, with or without stirrers; gas generators; coolers and condensing coils, also heating coils; decanting jars, sub-



STONEWARE CONDENSING AND COOLING COILS.

liming pans, pumps, fans, exhausters, etc., filters; pipes and fittings, valves, cocks, etc. Stoneware coils are illustrated. It will be seen that the coil is wound round a stoneware drum; it is not attached to it, however, so that the tube is free to expand and to contract with change in temperature. Such coils are used very largely in the nitric acid industry, and where it is necessary to cool corrosive liquids. These coils are not so difficult to make as the appearance would suggest. The most usual size has a 2½ in. tube, with a wall ⅜ in. thick, being 80 ft. long.

(To be concluded)

New Zealand Superphosphates

A Large Industry

THERE were eight works in New Zealand engaged in the production of superphosphates during the year ended March 31, 1927. With one small exception, each concern used principally the rock phosphate imported from Nauru Island and the Gilbert and Ellice Islands. The total cost of materials (including sacks) for the year ended March 31, 1927, amounted to £626,532, of which the cost of rock phosphate comprised £359,330, or 57 per cent. The quantities and cost of the principal materials used are set out hereunder :—

	Quantity Tons	Cost Sterling
Rock phosphate	113,472	£359,330
Sulphur	22,785	134,569
Nitrate of soda	1,031	17,168
Potash	1,646	12,484
Other		102,981
		£626,532

For statistical purposes the value of the products is based on the selling price at the works. During the period under review the total value of products reached £1,028,889, of which superphosphates accounted for £861,241, or 84 per cent. The principal products were superphosphates 180,940 tons, guano 2,239 tons, acids 1,519 tons, and other products valued at £140,377.

Well over 50 per cent. of the Dominion's imports of rock phosphates in 1927 came from Nauru Island, the balance coming principally from the Gilbert and Ellice Islands, and the Tuamotu Archipelago. That coming from Nauru Island appears to be considerably cheaper than that from the other countries. An important aspect in the rock phosphate trade is the question of transport charges. According to the report of the Railway Department for the year ended March 31, 1927, the average haul of manures (all classes) for that period was 72 miles. The bulky nature of the rock makes its transport particularly costly. A record of the rock phosphates imports shown by ports of entry follows :

Year	Auckland Tons	Lyttelton Tons	Dunedin Tons	Other Tons	Total Tons
1923	56,267	12,989	6,957	....	76,224
1924	55,566	15,030	6,572	2,500	79,668
1925	67,003	19,090	8,930	6,690	101,713
1926	88,731	26,219	7,300	18,315	140,565
1927	93,621	21,624	7,403	42,697	165,345

Chemical Engineers' Tour to Canada and U.S.A.

Full List of the Party

We publish below the full list of members of the Institution of Chemical Engineers and the Society of Chemical Industry who are leaving to-day (Saturday) for Canada and the United States. The majority of the party sail from Southampton on the *Megantic*; a smaller party, consisting mainly of representatives of Imperial Chemical Industries and other works, leave on the *Regina* from Liverpool, and a few members proceed to Canada on the *Duchess of Atholl*. The letters "S.A.N." represent Synthetic Ammonia and Nitrates, Ltd., "B.M.C." Brunner Mond and Co., "N.E.C." Nobel's Explosives Co., and "B.D.C." British Dyestuffs Corporation :—

Abernethy, A. T., Stockton-on-Tees, engineer, S.A.N.; Agnew, W. Y., Kilmarnock, Ayrshire, chemist, N.E.C.; Appleyard, G. H., joint manager, British Oil and Cake Mills, Hull; Bain, W., Cleckheaton, Yorks, analytical chemist; Banks, R. A., Northwich, works manager, B.M.C.; Beaver, H., secretary to Sir A. Gibb; Beesley, E., Stockton-on-Tees, chemist, S.A.N.; Birkinshaw, J. H., Saltcoats, Ayrshire, research biochemist, N.E.C.; Bolton, H. G., Press Club, London; Booth, A. L., Burnley, Lancs, technical chemist; Booth, Mrs. A. L.; Bradley, Dr. F., Norton-on-Tees, chemist, S.A.N.; Brisley, C. W., Saltcoats, works chemist, N.E.C.; Callender, A., Northwich, research engineer, B.M.C.; Carr, F. H., London, director, British Drug Houses, Ltd.; Carr, Mrs. F. H., and Misses M. and A.; Carter, C., Liverpool, chemist; Challenor, Dr. W. A. P., Saltcoats, research chemist, N.E.C.; Choate, M. F. S., Manchester, technical chemist; Chorley, P., Manchester, chemist, B.D.C.; Clark, J. G., London, gas engineer, Gas Light and Coke Co.; Colgate, Dr. R. T., Reading, works chemist, Huntley and Palmer; Colgate, Mrs. R. T.; Conolly, E. J. V., Huddersfield, works chemist, B.D.C.; Cosway, R., Penketh, Lancs, works chemist; Cowan, J. G., technical chemist, Universal Grinding Wheel Co., Stafford; Crookes, S. Irwin, Auckland, N.Z., consulting engineer; Culhane, Miss K., London, biochemist, British Drug Houses, Ltd.; Cullen, Dr. W., Surbiton, consulting chemist and director; Cullen, Mrs. W.; Currie, J. A., Norton-on-Tees, chemist, S.A.N.

Davies, W. E., London, works chemist, Gas Light and Coke Co.; Davis, Dr. W. G., Stockton-on-Tees, research chemist, S.A.N.; Dickins, K. W., Pembroke College, Cambridge, student; D'Leny, W., Norton-on-Tees, chemist, S.A.N.; Downs, L. H., engineer, Rose, Downs and Thompson, Hull; Eastwood, D. B., sulphuric acid foreman, J. Nicholson and Sons, Leeds; Eaton, Dr. F. J., London, chemist, Gas Light and Coke Co.; Edwards, A., analytical chemist, Gas Light and Coke Co.; Edwards, Mrs. A.; Farmer, Dr. R. C., Sidcup, Kent, research chemist, Royal Arsenal, Woolwich; Finn, C. P., coke-ovens manager, Manvers Main Collieries, Rotherham; Foster, C. A. M., Northwich, research chemist, B.M.C.; Fuidge, G. H., chemist, South Met. Gas Co.; Gibb, Sir Alex., London, consulting civil engineer; Goodfellow, B. R., Eaglescliffe, Durham, chemist, S.A.N.; Goodwin, C. J., London, consulting chemical engineer; Goodwin, Mrs. C. J.; Greene, F. A., London, consulting engineer; Greene, Mrs. F. A.; Guthrie, F. C., lecturer, Liverpool University; Hamer, F. E., (Benn Brothers, Ltd., London), editor of The Chemical Age; Harris, G. J., Stockton-on-Tees, research chemist, S.A.N.; Hebden, G. A., Rotherham, manager, South Yorkshire Chemical Works; Hill, B. P., technical adviser, Blaydon Manure and Alkali Co.; Hinchley, Professor J. W., Imperial College of Science, Professor of Chemical Engineering; Hodsman, H. J., Fuel Department, Leeds University, lecturer; Holliday, G. C., London, research chemist, Gas Light and Coke Co.; Hopkins, Mrs. C., Central House, London; Humphreys, T. C., Birmingham, works chemist, Birmingham Battery and Metal Co.; Illingworth, W. S., Northwich, research chemist, B.M.C.; Imison, C. S., Warrington, works superintendent, United Alkali Co.; Kerr, J. W., Pollokshields, Glasgow, research chemist, N.E.C.

Leonard, J. M., London, technical and research chemist; Lewis, E. H., Northwich, engineer, B.M.C.; Littler, R. P., assistant works manager, United Alkali Co., Bristol; Llewellyn, I. P., Widnes, chemist; Lomax, A., managing director, Ainsworth Mercerising Co.; Lundy, F. S., Billingham-on-Tees, chemical engineer, S.A.N.; McLellan, B. G., chief chemist, Rowntree and Co., York; McMyn, J. W., Manchester, lecturer; Manning, Dr. J., Norton-on-Tees, chemist, S.A.N.; May, Dr. P., London, consulting chemist; Mayne, P., Billingham-on-Tees, chemical engineer, S.A.N.; Minton, T. H., Widnes, chemist; Moore, F. J., Saltcoats, chemist, N.E.C.; Morgan, T. O., Manchester, analytical chemist; Morrell, Dr. R. S., research chemist, Mander Bros., Wolverhampton; Morrell, Mrs. E. M.; Morris, G., Saltcoats, physicist; Murphy, D. G., Stockton-on-Tees, engineer, S.A.N.; Nance, J. T., Cheshire, lecturer; Napier, J. W., manager and chemist, Gasworks, Alloa, Scotland; Nicholson, P. B., coke oven manager, Cortonwood Collieries; Nonhebel, G., Norton-on-Tees, research chemist, S.A.N.; Northall-Laurie, D., London, consulting chemical engineer; Palmer, R. B., analytical chemist, J. and J. Colman, Norwich; Palmer, W. H., Birmingham, chemist, Chance and Hunt, Ltd.; Panton, W., engineer, S.A.N.; Parrish, P., chemical works manager, South Met. Gas Co., London; Paterson, Dr. T. R., Ardeer, chemist, N.E.C.; Payman, J., Huddersfield, chemist; Payman, W., Research Station, Buxton, Safety in Mines Research Board; Pexton, Dr. S., London, chemist, Gas Light and Coke Co.; Pexton, Mrs. S.; Polack, W. G., Warrington, works chemist, Castner-Kellner Alkali Co.; Polack, Mrs. W. G.; Pope, R. W., Huddersfield, chemist; Potter, F. M., London, chemist, Gas Light and Coke Co.; Potter, C. A., Newcastle-on-Tyne, student.

Reavell, J. A., chairman, Kestner Evaporator and Engineering Co., London; Reavell, Miss E. M.; Renfrew, A., Saltcoats, chemist; Riley, A., Huddersfield, chemist; Rogers, W. D., Manchester, research chemist, B.D.C.; Sharp, F. L., Huddersfield, technical chemist, B.D.C.; Shiel, D. H., Saltcoats, chemist, N.E.C.; Shufflebotham, J. S., Birmingham, research chemist; Simmons, T. A., Huddersfield, technical chemist, B.D.C.; Smith, C. C., Eaglescliffe, Durham, chemist, S.A.N.; Smith, C. H., London, student engineer, South Met. Gas Co.; Smith, R. Christie, Hartford, Cheshire, research chemist, B.M.C.; Smith, Dr. Watson, chemist, African Explosives and Industries, London; Sosson, Dr. C. E., Saltcoats, research chemist, N.E.C.; Sprent, W. C., Liverpool, technical chemist; Standring, P. K., Birkenhead, chemist; Stokes, G. A., London, consulting and analytical chemist; Stokes, Mrs. A. W.; Thomas, R., Runcorn, research chemist; Thomson, W., Saltcoats, chemist; Thorpe, J. F., Imperial College of Science, Professor of Organic Chemistry; Thorpe, Mrs. J. F.; Twist, R. F., London, chemist, South Met. Gas Co.; Ure, G. S. M., Chemical Engineering Department, Imperial College of Science, lecturer; Welch, W., Huddersfield, mechanical engineer; Whitham, G. S., London, civil servant; Whitham, H., colour chemist, B.D.C.; Whitworth, E., Saltcoats, chemist; Wright, H. M. V., British Oil and Cake Mills, Hull; Wyler, Dr. M., manufacturing chemist, B.D.C.; Young, A. F., assistant works manager, J. Nicholson and Sons, Hunslet, Leeds.

A New York Opinion

Commenting on the above tour, *Chemical Markets* (New York), in an article on "Our British Visitors," says :—

"Commenting editorially on the visit of British chemists to Canada and this country for the meetings of the Society of the Chemical Industry in New York and the Fall meeting of the American Chemical Society at Swampscott, London trade journals express surprise at the large number of reservations which are on hand. When the original plan of the tour was conceived there was some scepticism expressed as to just what extent the idea would 'take hold' on the other side. The necessity of booking space on steamers other than the one provided for the tour is indicative of the enthusiasm with which the chemists have responded.

"The presence assured of such a representative group of British chemists, one naturally turns to the itinerary of the visitors through Canada and the United States for reassurance that their guests will have ample time to visit at the various stopping points. It seems peculiarly fitting that the American committee has arranged a programme containing names—both company and individual—of a nature to assure the visitors of an intensely interesting—if somewhat hurried—view of the industry in the Eastern section of the country, as well as various forms of entertainment which should long recall pleasant memories."

Nobel Industries Changes

The directors of Nobel Industries, Ltd., announce that, in order to simplify the administration of the companies merged by the formation of Imperial Chemical Industries, Ltd., it is their intention to submit resolutions for the winding-up of the company. Imperial Chemical Industries owns over 99 per cent. of the share capital of the company, and has intimated its intention in favour of those resolutions. Debenture stock holders are informed that upon the passing of the resolutions the stock will become repayable at a premium of 3 per cent., plus accrued interest. As an alternative to repayment of the principal of the stock in cash, Imperial Chemical Industries will offer for each £100 of stock 80 fully paid 7 per cent. cumulative preference shares of £1, carrying dividend from October 1, 1928.

Science and National Progress

To the Editor of THE CHEMICAL AGE.

SIR,—For the last fifteen years I have advocated the formation of a science committee in the House of Commons to focus attention on the ever-increasing influence of scientific discovery and research upon our national life, and to direct this influence into lines of greater efficiency and usefulness. This committee would act as a clearing house for the opinions and experience of those qualified to offer advice in this direction, and it would then offer this in an authoritative manner on the floor of the House and in Committee.

To-day the man in the street expects science to supply him with almost everything new, from his amusements to protection in time of war. This attitude requires careful watching and direction. The true position of science in its relation to national life has still to be worked out, and there is no better place to do this than in the Mother of Parliaments. Innumerable problems face us as a nation, which can best be solved when the full influence of science is directed towards their solution. Yet this new and powerful influence is still unrepresented officially in our legislative chambers, although many other influences are thoroughly organised there. The influence of science has stopped short at a stage in its natural development, and to an extent legislation takes place in its absence to the general loss of efficiency in the affairs of State.

Chemistry is the oldest of the sciences and the mother of most of the others, as we know them to-day. It should exert its undoubted popularity in the councils of science, and bring about a position where this country is the first to possess a definite science committee working hand to hand with the other important influences in our legislative chambers, and mould progress along lines which correspond with the general advance in the technical developments of science.

May I give an example of the difficulty experienced under present conditions? In putting forward the suggestion of the best way of dealing with the question of unemployment among miners, I have suggested that the more rational plan would be to bring the new scientific industries to the districts of greater need and gradually find employment for those who no longer find this in the mines themselves. I was at a complete loss to find any body which could examine this position and push it from the stage of suggestion to actual practice.

The rapid and efficient development of these new industries, like those of synthetic fertilisers, artificial silk and the like, is absolutely necessary in this country; and if we can at the same time so arrange the process of development that unemployment can be reduced in the darkest areas, we can kill two birds with one stone. By its efforts, such a committee could consider points of this nature, and see that they were carried out in some way or other. The functions of such a committee would be widely set, and its influence would grow with the development of the new world of industry in which we must take a leading part, if we are to retain our position in the industrial world.—Yours, etc.,

W. P. DREAPER, O.B.E.

27, Willow Road, Hampstead Heath, N.W.3.

Forest Products Research Laboratory

ON Tuesday, July 31, Lord Balfour, as President of the Committee of the Privy Council for Scientific and Industrial Research, held an informal reception at the Forest Products Research Laboratory recently erected at Princes Risborough, Buckinghamshire, for the Department of Scientific and Industrial Research. The laboratory, which was completed and equipped during the past year, is now fully in operation. It comprises sections for the study of timber seasoning, timber mechanics, timber physics, wood technology, entomology, wood preservation, wood-working and timber utilisation. Investigations on behalf of the laboratory are also carried out at the Imperial Forestry Institute, Oxford (wood technology and chemistry), the University of St. Andrews (chemistry) and the Imperial College of Science and Technology, South Kensington (mycology). The work of the laboratory is under the immediate direction of Mr. R. S. Pearson, Director of Forest Products Research, and the general programme of work is supervised by the Forest Products Research Board, under the chairmanship of Principal Sir James C. Irvine, F.R.S.

Viscose Artificial Silk Manufacture

Senior Medical Inspector's Report on Health Hazards

THE recently-issued report of the Chief Inspector of Factories and Workshops includes the report of the Senior Medical Inspector, Mr. J. C. Bridge, F.R.C.S.E., M.R.C.P.E., D.P.H.

In an interesting section dealing with the manufacture of artificial silk, Mr. Bridge states that special attention has been given to the manufacture of artificial silk by the viscose process. The health hazard in this manufacture is chiefly centred in two operations, spinning and churning, although some of the subsidiary processes call for comment.

Carbon Bisulphide Fumes

The risk to health in the churning process, where the cellulose is converted to xanthate, is from the fume of carbon bisulphide present when the churns are emptied, the amount of fume depending upon the completeness of the operation, the number of churns in use, and the number of times they are emptied daily. No case of poisoning by carbon bisulphide has been notified from this industry, and the men examined have shown no evidence of ill-health due to carbon bisulphide. This manufacture, with the exception of one large firm, has not been in operation in this country for any great length of time, so that the effects of exposure to carbon bisulphide over long periods cannot be definitely ruled out, although the inspector considers that the arrangements in use limit the possibility of cases of this nature arising.

The two hazards in spinning are (*a*) injury to the fingers; (*b*) conjunctivitis. Contact with alkali and with acid in the bath through which the viscose passes, may injure the skin of the hands and finger nails and produce fissures at the base of the nails. Sores, in the nature of acid holes, have been noted in a certain number of the workers. Various measures have been found to obviate injury to the skin of the hands, and in some works it is the practice to supply grease or vaseline with which the men can coat their skin. In spool spinning, a trough of water in front of the machine has been provided in some cases, into which the hands of the spinner can be dipped from time to time to remove the acid.

Conjunctivitis

The other and more important hazard—conjunctivitis—occurs in a large number of workers. In addition to the obvious infection of the conjunctiva, complaint is made of a gritty feeling in the eyes, with acute photophobia, haziness of vision, and "objects seem with a ring round them." This condition usually passes off in twenty-four hours, but may last from one to three days. The case of a man who was off for fifteen days has been noted, but no evidence of any permanent injury to the eye has been observed, although a slight case of corneal ulceration has occurred. Inquiries made at an eye hospital show that of all cases attending there, none has been permanently injured. Five men were examined who complained of their vision being seriously affected, but no evidence of permanent injury could be found.

This conjunctivitis has hitherto been attributed to hydrogen sulphide gas. More recently the inspectorate have been inclined to think that some of these cases of conjunctivitis are due to the finely atomised spray given off in the spinning process. Prompt treatment in the early stages has been effective in mitigating the condition and in reducing the number of cases requiring absence from work. Whether the acid spray is the primary cause of the conjunctivitis or not, there is no doubt that effective ventilation is called for, owing to the presence of hydrogen sulphide. No definite evidence of ill-health from this cause has been observed, though pallor and gastric disturbances are liable to be caused if it is present in the air in any quantity. Pallid complexion among some of the workers has been noted and an occasional complaint of gastric disturbance.

Phosphate Deposits in British Columbia

ACCORDING to an announcement by the British Columbia Department of Mines, the Consolidated Mining and Smelting Co. of Canada, Ltd., is acquiring leases to forty square miles of territory on the Elk River, not far from Fernie, B.C., where phosphates can be recovered in enormous quantities and manufactured into fertiliser. The company has already manufactured fertiliser at its metallurgical works at Trail B.C., from the phosphate deposits of the Fernie district. The chemical process involves the utilisation of by-product sulphuric acid, from smelting operations.

Atmospheric Pollution

Report on Observations in the Year Ending March 31, 1927

THE Department of Scientific and Industrial Research has just issued the thirteenth report on *The Investigation of Atmospheric Pollution* (H.M. Stationery Office, pp. 54, 6s. 6d.).

In this report, the deposit of impurity at 80 different stations in the United Kingdom is considered. A classification is made according to standards of increasing quantity of deposit denoted by the letters A to D in order of quantity of pollution. It is shown that from 1914 to 1927 the number of stations ranking as A and B has increased from 54 per cent. of the total in 1914–15 to 87 per cent. in 1926–27. On the other hand, stations ranking as D show little improvement, the percentage at the beginning and end of the period being 4. Tables are given setting out the results from different aspects. The tar deposit during the current year was highest at Burnley, the lowest being at Southport (Hesketh Park). Carbonaceous or sooty matter made its highest deposit at Newcastle-on-Tyne, the lowest being at Rothamsted. The highest deposit of sulphates was at Burnley, the lowest at Southport (Hesketh Park).

Question of Sulphur Content

The relation of sulphur to total deposit is discussed, and the effect of the increasing use of gas, showing that this accounts for some at least of the reduction in sulphates deposited during recent years. In the eleventh and twelfth *Reports of the Advisory Committee on Atmospheric Pollution* the relation of sulphur to other deposits was discussed, and the amount of sulphates was compared with carbonaceous matter and total solids. A tendency was shown for the sulphur deposit to vary inversely as the total, when different places were compared, but not in all cases. Similarly, an inverse relation was shown to exist between the percentage of carbonaceous matter and that of sulphates in the deposits, this latter being probably due to the effect of dilution of sulphur contents with carbonaceous matter. It has often been stated that the abolition of smoke would leave the air as much polluted by sulphur as before, since the sulphur in coal is emitted as a gas, and the quantity bears no relation to the amount of smoke. This might be true provided smokeless fuel, which contained the same amount of sulphur, was substituted for coal. Such substitution has not occurred. There has, on the other hand, been a great increase in the quantity of coal gas consumed for heating and cooking, and this has a profound effect upon the amount of sulphur emitted. Roughly speaking, when gas is substituted for coal, to evolve the same amount of heat, the sulphur produced by the gas burned is about one-twentieth of that which would have been produced by the coal.

A table setting out the annual deposit in London and Glasgow from 1914 to 1927, brings out the gradual reduction of impurity during those years, and also the fact that in the same locality sulphate deposit diminishes more than in proportion to the total deposit. Section 2 deals with the suspended smoky matter in the air and its hourly variation. A curve shows the effect of the coal stoppage of 1926 at Stoke-on-Trent. While in London there was no appreciable effect on the amount of smoke pollution, there was a considerable improvement at Stoke-on-Trent. In Section 3, dust counter observations are given from America, Melbourne and Stockholm. With the American observations parallel figures were sent for sulphur in the air. An account is given of a haze in Norfolk, and the method of trapping it for examination; the haze was found to consist of salt crystals. The obstruction of ultra-violet radiation by smoke is brought out by a curve which indicates that nearly the whole of the ultra-violet rays is cut off by a comparatively small amount of smoke in the air.

New Organisation

Hitherto, the work of observation of pollution has been carried out by the Meteorological Office (Air Ministry) Advisory Committee on Atmospheric Pollution. A reorganisation has now taken place, and the work will in future be carried out by a body representing jointly the Department of Scientific and Industrial Research and local and other bodies who maintain gauges and keep records.

The Hague Chemical Conference

Meeting of International Union

THE ninth conference of the International Union of Pure and Applied Chemistry, presided over by Professor Ernst Cohen, of Utrecht, took place at the Hague, with the participation of 24 nations, in the period July 18–24. The "Chemische Raad van Nederland," with the agreement of the Union, invited as guests the following chemists, belonging to countries not yet members of the Union: Professors M. Bodenstein, Fritz Haber, and W. Marckwald, all of Berlin; Professor A. Stock, of Karlsruhe; Professor F. Pregl, of Graz; Professor R. Wegscheider, of Vienna; Professors L. Ipatiew, N. J. Stepanow, and A. Tschitschibabin, all of Leningrad; and Professors N. Schilow and W. Zelinsky, of Moscow.

The members of the Union carried the following resolution unanimously: "The International Union of Pure and Applied Chemistry is glad to greet the chemists of Germany, of Austria, of Hungary, and of the U.S.S.R., who have come as guests to the Hague conference. It hopes that the chemical groups of those countries will soon organise themselves with a view to their admission to the Union." New statutes were adopted, as a result of which the Union will, in future, meet not yearly, but biennially, while the International Congress of Pure and Applied Chemistry will be held every four years. The next meeting will take place in Belgium in 1930, at the invitation of the chemists of Belgium. The Union has also received an invitation to hold the International Congress of 1932 in Madrid. Professor E. Bijlmann, of Copenhagen, was elected president for the next four years.

Consulting and Research Chemist's Affairs

THE receiving order against Claude Vautin, chemist, of 122, Finchley Road, N.W.3, was made on a creditor's petition, and the statement of affairs as returned by the debtor shows liabilities of £2,921 10s., there being no assets. Failure is stated to be due to the falling off of consulting work after the war, heavy expenses of experimental research work from which there has been no immediate benefit, absence of income to meet living expenses and law costs. It appears that debtor appeared before the Court in Johannesburg in 1890, his liabilities then amounting to £14,000. He was unable to say whether or not a dividend was paid, but he did not obtain a release from the debts, although he stated that he had since paid some of the creditors in full. In November, 1898, debtor again appeared before the Court, with liabilities returned at £20,140 6s. 3d., and assets of £36,812 17s. 1d., these latter realising £9,385 17s. 6d., and a dividend of 3¼d. in the £ was paid. Debtor has not applied for his discharge under those proceedings. In 1916, debtor came before the Court with liabilities of £59,266 13s. 3d., his assets realising £1,794 18s. 8d. and dividends amounting to 6⅝d. in the £ were paid. The debtor stated that he had not applied for or obtained his discharge from these proceedings. After 1916 debtor carried on business as a consulting chemist in London until 1924. He was afterwards engaged in research work and had patented three inventions, namely, improvements in or relating to lead alloys; improvements in and relating to the preservation of foodstuffs and the like; and the manufacture of organic tin compounds. In consideration of advances to meet the experimental work and patent fees on these inventions, he agreed to share his interest in the patents with the persons who provided the monies, and he had also borrowed money from his wife, friends and others for household and personal expenses. Debtor stated that he had kept no books of account, and alleged that he became aware of his position from 1924.

Chemical Engineering at University College, London

MR. J. P. MULLEN, M.ENG., has been appointed lecturer in the Department of Chemical Engineering of University College, London, under the direction of Professor W. E. Gibbs, D.Sc. Mr. Mullen was educated at St. Edward School, Liverpool, and the University of Liverpool. He was combustion and production engineer in the rolling mills and foundries of the Royal Ordnance Factories, Woolwich, and Ballistic Officer, H.M.S. *Excellent*, Portsmouth, during the war. Since then he has undertaken research on refrigeration at the University of Illinois, has held the post of development engineer of the Western Electric Co., Chicago, and the post of fuel engineer, Anglo-Persian Oil Co.

Canadian Fertiliser Industries

Output in 1926

WHILE the output of the Canadian fertiliser industry in 1926 was slightly higher in value than in the preceding year, the quantities of materials consumed by the industry fell off nearly 12 per cent. from the 1925 figure. Of the twelve establishments operating in 1926, six were located in the Province of Ontario, two in Nova Scotia, two in British Columbia, one in Quebec, and one in New Brunswick. The following table shows the quantities of materials consumed by the Canadian fertiliser industry. It is possible, however, that considerable quantities of some of these materials were not used in fertiliser manufacture, for example, important quantities of sodium nitrate were used in the production of nitric acid :

	1925 Pounds	1926 Pounds
Superphosphate	28,007,532	12,697,787
Ammonium phosphate	370,000	165,850
Ammonium sulphate	2,543,664	2,740,193
Basic slag	10,857,200	7,380,000
Bone ash	130,900	159,416
Bone flour and bone dissolved	96,000	219,333
Bone meal (crude)	1,419,680	1,154,280
Calcium cyanamid	328,582	546,893
Dried blood	610,300	610,300
Fish scrap (dried and acidulated)	60,000	60,000
Kainite and other crude potash salts	100,000	391,060
Lime and land plaster	3,891,514	2,928,988
Potassium carbonate	603,465	211,180
Potassium chloride	6,104,772	5,192,414
Potassium sulphate	460,655	663,965
Phosphate rock (crude)	5,785,408	17,453,825
Sodium nitrate	2,913,015	2,337,969
Sulphuric acid	2,174,540	2,445,611
Tankage	5,224,107	5,872,270
Total	71,681,334	63,231,434

The principal kinds of fertilisers imported into Canada from the United States during the fiscal years ended March 31, 1926 and 1927, were :—

	1926 Short Tons	1927 Short Tons
Superphosphate	69,227	74,178
Fertilisers, compounded or manufactured, n.e.s.	21,615	30,132
Nitrate of soda	14,180	10,026
Muriate of potash	1,424	4,317
Bone dust, charred bone and bone ash	2,113	2,113
Animal manures	4,050	3,240
Sulphate of ammonia	1,641	1,529
Phosphate rock	13,953	14,611
Sulphate of potash	133	285
Vegetable manures	846	1,633

In addition to the above, very small quantities of fish offal or refuse, kainite, and other materials were imported.

The Maritime Provinces of Nova Scotia, New Brunswick and Prince Edward Island consumed the largest proportion of the fertilisers imported from the United States, with the Province of Ontario second, the Province of Quebec third, and the Province of British Columbia fourth. The vast Prairie Provinces are not, as yet, consumers of fertiliser materials.

Alleged Pollution of River: Suffolk Inquiry

AN inquiry was held on behalf of the Ministry of Health at Needham Market (Suffolk) on Wednesday into the alleged pollution of the River Gipping, the Bosmere and Claydon Rural District Council applying for consent to take legal proceedings against the British Acetate Silk Corporation, Ltd. for alleged offences against the provisions of the Rivers Pollution Act, 1876, by polluting the river with liquid discharged at the company's works near Stowmarket. Dr. A. M. N. Pringle, medical officer for Ipswich, said that in July over six tons of dead fish were removed from the river in the borough boundary, which was about fourteen miles from the silk works. A representative from the Ministry of Agriculture and Fisheries said that in experiments he made with water taken from the more polluted portions of the river he found that trout would not live much more than a minute. He had never come across a river worse polluted. The inquiry was adjourned.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published ; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries :—

109. (*Carboraffin*).—An inquirer wishes to know the name of the manufacturers of " Carboraffin."

Chemical Matters in Parliament

Public Chemist (Fees)

Mr. A. V. Alexander (House of Commons, August 2) asked the Minister of Health whether the fee charged by the Government Analyst had recently been raised from one guinea to two guineas ; and whether, as this charge was altogether out of proportion to the work involved and was likely to cause the denial to some individuals of the right to appeal under the Sale of Food and Drugs Acts, he would consider the reduction of this fee ?—The Financial Secretary to the Treasury (Mr. A. M. Samuel) answered that the fee charged by the Government Chemist for the analysis of samples submitted to him under the Sale of Food and Drugs Acts was increased on April 1, 1927, from one guinea a sample to two guineas. He was advised that the existing fee was amply justified by the work involved, and that there was no reason to suppose that its retention would have the effect suggested. The Government Chemist was regarded as a referee, and it was absolutely necessary that they should have accurate and experienced assistants. For the work they did the fee was only just adequate.

Artificial Silk Manufacture

In a reply to Mr. Kelly (House of Commons, August 3), Mr. Chamberlain stated that he had received complaints from local authorities as regarded two cases dealing with artificial silk manufacture, one relating to smells, the other to river pollution. In the former, the council was informed that the general question was under investigation ; in the latter, an inquiry was being held into the application of the council for consent to take proceedings.

Welsbach Light Co.: I.C.I. Offer Accepted

THE directors of the Welsbach Light Co. state that assents to the offer of Imperial Chemical Industries, exceeding the stipulated minimum of 76 per cent., have been already received from Welsbach shareholders, and that the offer has therefore become absolute and binding. Shareholders who have not sent in assents are recommended to do so without delay.

Appointments Vacant

TWO CHEMISTS for the Meat Products Research Branch of the New Zealand Department of Scientific and Industrial Research, Wellington, N.Z.—The High Commissioner for New Zealand, 415, Strand, London, W.C.2. September 8.

LECTURER IN ORGANIC CHEMISTRY in the Sir John Cass Technical Institute, Jewry Street, Aldgate, London, E.C.3.—The Principal. September 12.

ASSISTANT ANALYST in the Government Analyst's Department, Trinidad.—The Private Secretary (Appointments), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1. August 20.

A RESEARCH CHEMIST for the Safety in Mines Research Board, to study ionisation during gaseous explosions.—The Under-Secretary for Mines, Establishment Branch, Mines Department, Dean Stanley Street, London, S.W.1. August 18.

ASSISTANT LECTURER AND DEMONSTRATOR in the British School of Malting and Brewing and the Department of the Biochemistry of Fermentation, University of Birmingham.—The Secretary, The University, Edmund Street, Birmingham. August 31.

From Week to Week

SIR ARTHUR DORMAN celebrated his eightieth birthday on Wednesday.

DR. R. LESSING has been elected an honorary member of the Coke Oven Managers' Association.

THE POTASH DEPOSITS OF SPAIN, in the province of Seville, are to be investigated by a group including the Banco Español de Credito.

E. I. DU PONT DE NEMOURS AND CO'S. service department are making a survey of economic conditions to determine the possibility of adopting the five-days working week.

THE NEW COMPANY formed by the combination of the two German firms of J. D. Riedel and E. de Haen will be known as the J. D. Riedel–E. de Haen Aktiengesellschaft.

DR. ROBERT ANDERSON, the well-known authority on aluminium, vice-president of the Fairmont Manufacturing Co., sailed from New York on August 1 on the *Aquitania*, on an entensive business trip.

THE ANNUAL GENERAL MEETING and dinner of the Coke Oven Managers' Association will be held at the Hotel Great Central, London, on October 25. Sir David Milne-Watson will be the principal guest.

MR. I. H. BOAS, chief chemist to Michaelis, Hallenstein and Co., of Melbourne, has been appointed to take charge of the newly-created department of forest products of the Commonweath Council for Scientific and Industrial Research.

DR. N. E. GORDON, professor of chemistry at the University of Maryland, and editor of *The Journal of Chemical Education*, has been elected to the chair of chemical education recently founded by an anonymous benefactor at the Johns Hopkins University.

DR. ROBERT A. MILLIKAN, of Pasadena, California, U.S.A., to whom the Messel Medal of the Society of Chemical Industry for 1928 will be presented during the Society's meeting in New York, will take as the subject of his Messel Lecture "Available Energy."

THIRTY PEOPLE are thought to have been killed as the result of an explosion of benzine in a chemical works at Lodz on Monday, July 30. The explosion was caused by several large tanks catching fire, owing, it is thought, to abnormal summer heat. Three hundred people are stated to have been injured.

LIEUT-CDR. D. J. CLARIS has resigned his post as Assistant-Director of Physical Training and Sports at the Admiralty and Secretary of the Royal Navy and Royal Marine Sports Control Board, to accept an appointment to take charge of the recreation of the employees of Imperial Chemical Industries, Ltd.

MR. P. B. SHOWAN, at the City of London Vacation Course on Education, mentioned an examination answer which he had come across which stated that "nitrogen is not found in Ireland." Inquiry into the source of this information revealed the fact that it was based on a statement in a text book that "nitrogen is not found in the free state."

ABOUT FIFTY PEOPLE who were affected by the escape of phosgene at Hamburg either through loss of a relative or personal injury have formed an association with the object of pressing their claims for compensation against the State of Hamburg. It was stated that complaints made to the authorities before the disaster as to a illness caused by the escape of fumes were rejected as groundless.

MR. W. C. TEAGLE, president of the Standard Oil Co., N.J., who arrived in England this week, will probably go to Berlin, where he will meet the chiefs of the I.G. Farbenindustrie, with whom the Standard Oil Co. some time ago came to an agreement on rights in the Bergius process of extraction of oil from coal. Members of the I.G. technical staff are still in the United States, advising on the erection of a plant.

THE REPORT OF AN INQUIRY into the wrecking of two gasholders at Bradford Road Gasworks, Manchester, has been issued by the Ministry of Health. The Inspector, Mr. F. O. Stanford, concluded that the cause of the accident was the weakened condition of the plating through corrosion and the continued use of the holders under normal working conditions when their safe working life had been passed. Local corrosion had reduced the strength of the iron plates to a serious extent.

UNIVERSITY NEWS.—*Southampton:* Mr. C. H. Beale and Mr. E. D. Colenutt have been appointed demonstrators in the Department of Chemistry.—*London:* Dr. Alexander Robertson has been appointed, from September 1, to the University Readership in Chemistry tenable at East London College. Since 1926 he has been assistant lecturer in chemistry at the University of Manchester. The degree of D.Sc., has been conferred on Mr. Guhasarkar for a thesis entitled "The Influence of Groups and Associated Rings on the Stability of Certain Heterocylic Ring Systems." Mr. O. J. Walker has been appointed lecturer in the Department of Chemistry and Mr. E. R. Dawson has been appointed assistant in the Department of Physiology and Bio-Chemistry at University College.

SPANISH PRODUCTION of zinc ore last year has been estimated at about 150,000 metric tons.

THE "ADRIA SODA" company of Monfalcone, Italy, has been acquired by the Belgian Solvay Co.

ITALIAN IMPORTS of chemicals, dyes, medicines, etc., in January and February of this year, were valued at 256,600,000 lire.

RECENT WILLS INCLUDE:—Mr. F. M. Perkin, West Kensington the well-known consulting chemist, £2,377 (net personalty, nil).

A MONUMENT erected at Lyons to Count Chardonnet, the discoverer of nitrocellulose artificial silk, was unveiled on July 29 by the French Minister of Education.

A ROUMANIAN COMPANY known as the "Industria Oxygenului," ofBucharest, with a capital of 5 million lei, has been formed for the manufacture of compressed and liquefied gases, especially oxygen.

MR. RUDOLPH MUSPRATT, son of Sir Max Muspratt, was on Wednesday, August 1, admitted a Liveryman of the Worshipful Company of Dyers, thereby becoming a Freeman of the City of London.

A QUESTIONNAIRE, issued by *Chemical Markets* (New York) to one thousand leading American chemical firms on the question of forming one Chemical Chamber of Commerce, has resulted in 242 replies in favour and 33 against.

AT THE PARLIAMENTARY BY-ELECTION held recently in the Hallam Division of Sheffield, Mr. Louis W. Smith, chairman of Doughty-Richardson Fertilisers, Ltd., of Lincoln, was returned as Member of Parliament (Conservative).

THE AMERICAN SECTION of the Society of Chemical Industry (which is entertaining the Society for the annual meetings in New York in September) has elected Mr. Charles Lunn chairman, Mr. F. Dee Snell secretary, and Mr. F. C. R. Hemmingway treasurer.

"THE ASLIB DIRECTORY," a guide to sources of specialised information in Great Britain and Ireland, has just been published (at the price of one guinea) jointly by the Association of Special Libraries and Information Bureaux and the Oxford University Press.

A RUMOUR is being circulated on what is said to be good authority (states the *Financial News*) that a fusion is being negotiated between Bell's United Asbestos Co., Ltd., and the Cape Asbestos Co. It has not been possible to obtain either an official confirmation or denial of the rumour.

PUBLICATIONS received from the Research Association of British Rubber Manufacturers include the Library Catalogue, the March Summary of Current Literature and a reprint of a paper by Dr. S. Pickles on "The Importance of an Adequate Intelligence Service for the Rubber Industry."

AN INTERNATIONAL REUNION of physical chemistry will be held in Paris, from October 8 to 11. Among those participating are Professor S. Chapman, of London, who will deal with "The Brownian Movement"; and Mr. A. Egerton, of Oxford, who will deal with "The Mechanism of Combustion."

THE MINISTER FOR MINES of South Africa, Mr. Beyer, speaking last week at Kimberley, said that South Africa had 180 billion tons of coal which would be utilised for the production of crude oil. The Government intended to establish a fuel research institute at a cost of £30,000, and an annual charge of £8,000 to £10,000.

AN AGREEMENT has been arrived at whereby Amalgamated Anthracite Collieries, Ltd., has acquired Henderson's Welsh Anthracite Collieries, Ltd., and Welsh Anthracite Collieries, Ltd. Amalgamated Anthracite Collieries, of which Lord Melchett is chairman, will now control practically the whole of the South Wales anthracite coalfields.

THE SECRETARY OF THE Department of Scientific and Industrial Research states that he has now received information that the National Association of Olive Growers of Spain have extended until October 31, 1928, the period for acceptance of entries for the International Competition for Oil Analysis organised by that Association.

DR. F. E. BREITHUT, of the College of the City of New York, has been elected president of the American Institute of Chemists, Other officers are:—vice-president, Mr. L. Van Doren; secretary, Mr. H. S. Neiman; and treasurer, Mr. C. K. Simon. Dr. H. W. Wiley, formerly chief of the United States Bureau of Chemistry, has been elected an honorary member of the Institute.

ARTIFICIAL SILK NEWS.—German artificial silk companies are stated to be considering the erection of branch factories in Mexico to supply the demand in that quarter of the globe.—Courtaulds, Ltd., will probably open a factory at Bamber Bridge, near Preston. —At the statutory meeting of the Yorkshire Artificial Silk Co., which was held on Wednesday, Lt.-Col. J. G. Thom said that arrangements which had been made for deliveries of plant and machinery have resulted in the speeding up of the preliminary work to an extent which justifies a belief that the production of artificial silk on a commercial basis will be reached before the end of 1928.

References to Current Literature

British

ANALYSIS.—Estimation of Katonol O and investigation of its absorption by viscose silk. P. E. King, G. M. Wadadekar, and E. N. Johnson. *J. Soc. Dyers and Colourists*, August, pp. 237–241.

Distinguishing between methyl salicylate natural and synthetic. F. D. Dodge. *Perfumery and Essential Oil Record*, July, pp. 258–260.

GENERAL.—The influence of glass upon vapour pressure. J. Rinse. *J. Chem. Soc.*, June, pp. 1442–1449.

Chemical effects of the natural sulphur in wool on the fading of azo dyestuffs. A. T. King. *J. Soc. Dyers and Colourists*, August, pp. 236–237.

The study of moving flames. W. Payman. *J. Chem. Soc.*, June, pp. 1738–1740.

LEATHER.—The dyeing and gloving and clothing leathers, M. C. Lamb. *J. Soc. Dyers and Colourists*, August, pp. 225–229.

ORGANIC.—The constitution of phenolphthalein. Part I. Preparation of some compounds of the phthalein type. H. Lund. *J. Chem. Soc.*, June, pp. 1569–1575.

Some thiazole derivatives. Part II. H. W. Stephen and F. J. Wilson. *J. Chem. Soc.*, June, pp. 1415–1422.

PETROLEUM.—The composition of petroleum (kerosine and other) fractions. Part III. J. A. Carpenter. *J. Inst. Petroleum Tech.*, June, pp. 446–476.

VARNISHES.—Some methods of testing the suitability if paints, varnishes and lacquers for aeronautical purposes. E. W. T. Mardles. *J. Oil and Colour Chem. Assoc.*, July, pp. 230–259.

VITAMINS.—The specificity of ergosterol as parent substance of vitamin D. O. Rosenheim and T. A. Webster. *Biochem. J.*, Vol. XXII, No. 3, pp. 762–766.

Studies on colour tests for sterols and vitamin A. Part I—Sterol tests. F. Wokes. *Biochem. J.*, Vol. XXII, No. 3, pp. 830–835.

United States

GENERAL.—Wildiers' Bios. The isolation and identification of "Bios I." E. V. Eastcott. *J. Phys. Chem.*, July, pp. 1094–1111.

Solutions of salts in pure acetic acid. Part I. Preliminary paper. A. W. Davidson. *J. Amer. Chem. Soc.*, July, pp. 1890–1895.

Pressure electrolysis of water eliminates need for compressors. J. E. Noeggerath. *Chem. Met. Eng.*, July, pp. 421–423.

LEATHER.—Further studies on the chemistry of liming. G. D. McLaughlin, J. H. Highberger and E. K. Moore. *J. Amer. Leather Chemists Assoc.*, July, pp. 318–336.

On the re-use of salt in the curing of animal skins. G. D. McLaughlin, I. H. Blank and G. E. Rockwell. *J. Amer. Leather Chemists Assoc.*, July, pp. 300–318.

ORGANIC.—Polymerisation of aldehydes. H. Hibbert, W. F. Gillespie and R. E. Montonna. *J. Amer. Chem. Soc.*, July, pp. 1950–1955.

The preparation and properties of α-furfuryl chloride and a few α-furfuryl ethers. W. R. Kirner. *J. Amer. Chem. Soc.*, July, pp. 1955–1961.

Synthesis of heptane -1:5- dicarboxylic acid. A. S. Carter. *J. Amer. Chem. Soc.*, July, pp. 1967–1970.

A new method for the preparation of phenolsulphonephthalein and bromosulphonephthalein. R. Freas and E. A. Provine. *J. Amer. Chem. Soc.*, July, pp. 2014–2017.

p-Cymylene -2:5- diamine and certain new dyes. A. S. Wheeler and R. W. Bost. *J. Amer. Chem. Soc.*, July, pp. 2000–2005.

TEXTILES.—Wool oils and their removal or the scouring of wool piece goods. C. E. Mullin. *Textile Colourist*, July, pp. 451–456.

German

ANALYSIS.—The quantitative estimation of the organic solvents lost in the extraction of aqueous solutions. A. Weindel. *Brennstoff-Chemie*, July 1, pp. 213–215.

A titrimetric determination of potassium. G. Tander and O. Pfundt. *Chemische Fabrik*, July 18, pp. 435–436 and July 25, pp. 446–448.

Technical carbazole analysis. E. Schwenk and L. Wanka. *Zeitschrift analytische Chem.*, Vol. 74, Nos. 5–6, pp. 168–187.

Determination of water in fuels by means of magnesium methyliodide. A. Taubmann. *Zeitschrift analytische Chem.*, Vol. 74, Nos. 5–6, pp. 161–167.

A new rapid method for the estimation of manganese. G. Spacu and J. Dick. *Zeitschrift analytische Chem.*, Vol. 74, Nos. 5–6, pp. 188–191.

Critical consideration of the analysis of glycerine by the acetin method and its sources of error. O. Berth. *Chemiker-Zeitung*, August 1, pp. 597–598.

GRAPHITE.—On the knowledge and literature of graphite. Part I. E. Donath. *Chemiker-Zeitung*, July 28, pp. 589–590.

HYDROGENATION.—Hydrogenation of coal in the presence of catalysts. B. Hlavica. *Brennstoff-Chemie*, July 15, pp. 229–231.

ORGANIC.—Action of phosgene on the polypeptide-like derivatives of *p*-aminobenzoic acid. Formation of 1:3-substituted hydantoins. C. Tropp. *Berichte*, July 11, pp. 1431–1439.

Formation of bases from carbonyl compounds. A. Skita and F. Keil. *Berichte*, July 11, pp. 1452–1459.

The magnitude and causes of the ortho-effect in the hydrolysis of aromatic esters. K. Kindler. *Annalen*, Vol. 464, Part 3, pp. 278–292.

PLANT.—The behaviour of rubber-plated apparatus towards organic solvents. A. Bresser. *Kunststoffe*, June, pp. 125–127 and July, pp. 160–162.

Use of revolving pipes for crystallisation and evaporation. H. Barkholt. *Chemische Fabrik*, July 18, pp. 431–433.

French

CATALYSIS.—Autoxidation and anti-oxygen action. Catalytic properties of phosphorus compounds. C. Mouren, C. Dufraisse and M. Badoche. *Comptes Rendus*, July 17, pp. 157–161.

COLLOIDS.—The science of colloids and its applications. Part I. H. Braidy. *L'Industrie Chimique*, June, pp. 294–297.

GENERAL.—Surface action in chemical phenomena. R. Dubrisay. *Bulletin Soc. Chem. France*, June, pp. 625–641.

On the origin of petroleum. J. A. Le Bel. *Bulletin Soc. Chem. France*, June, pp. 654–657.

ORGANIC.—Action of picric acid on glycyl-glycine. A. Morel, P. Preceptis and A. Galy. *Comptes Rendus*, July 17, pp. 173–174.

Linear C_8-glycerines containing a triple bond. R. Lespieau. *Bulletin Soc. Chim. France*, June, pp. 657–662.

TEXTILES.—The manufacture of viscose artificial silk. Part V. R. Mortgat. *L'Industrie Chimique*, June, pp. 290–293.

VARNISHES.—Nitrocellulose varnishes and paints. Part I. J. H. Frydlender. *Revue Produits Chimiques*, July 15, pp. 481–488.

Miscellaneous

HYDROGENATION.—The catalytic hydrogenation in the ring of aromatic and aliphatic-aromatic aldehydes in the form of their acetals. Part I. F. Sigmund. *Monatshefte*, Vol. 49, Parts 4–5, pp. 271–282 (in German).

INORGANIC.—On the oxidation of ferrous hydroxide in sodium hydroxide solution by means of air. S. Miyamoto. *Bulletin Chem. Soc. Japan*, June, pp. 137–141 (in English).

Mercuri-tetrammine-persulphate. F. Fichter and S. Stern. *Helvetica Chimica Acta*, Vol. XI, Part 4, pp. 754–758 (in German).

ORGANIC.—A synthesis of pyridine derivatives. E. Späth and G. Burger. *Monatshelfte*, Vol. 49, Parts 4–5, pp. 265–270 (in German).

The rate of esterification of nitrobenzoic acids in ethylene glycol and of naphthoic acids in glycerine. A. Kailan and E. Krakauer. *Monatshefte*, Vol. 49, Parts 4–5, pp. 347–384 (in German).

Aldehydes from acetylene-carbinols. Part II. H. Rupe and L. Giesler. *Helvetica Chimica Acta*, Vol. XI, Part 4, pp. 656–669 (in German).

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

293,203. FORMALDEHYDE, MANUFACTURE AND PRODUCTION OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 13, 1927.

In the production of formaldehyde from methanol and air it has not been possible to use the heat of the effluent gases and vapour to pre-heat the incoming mixture since the mixture is partly superheated in contact with the hot walls of the regenerator, and some of the methanol is oxidised beyond the formaldehyde stage. In this invention, the methanol and air are pre-heated separately by regeneration to about 150° C. and 120° C. respectively, and then mixed together and admitted into the reaction chamber.

293,328. DYESTUFFS AND INTERMEDIATES. H. W. Hereward, J. Thomas, and Scottish Dyes, Ltd., Earl's Road, Grangemouth, Stirling. Application date, December 29, 1926.

It has been found that alkyl-substituted anthraquinones, *e.g.*, β-methylanthraquinone and β-carboxy-anthraquinone can be converted into alizarine by the action of caustic alkali in aqueous solution and an oxidising agent. Examples are given of the treatment of β-carboxy-anthraquinone with caustic soda and sodium chlorate, and β-methyl-anthraquinone with caustic soda and sodium chlorate, to obtain alizarine.

293,363. METALLO MERCAPTO COMPOUNDS, MANUFACTURE OF. W. Carpmael, London. From Chemische Fabrik auf actien (vorm. E. Schering), 170-171, Mullerstrasse, Berlin, N. 39. Applicat on date, February 2, 1927.

These compounds are obtained by treating a carbohydrate containing a sulfhydryl group with a salt of a heavy metal, other than silver, in neutral, acid, or alkaline medium. Examples are given of the treatment of 1-thioglucose with sulphurous acid and potassium auribromide to obtain 1-aurothioglucose, 1-thioglucose with a solution of bismuth oxide in hydrochloric acid to obtain 1-bismuth-thioglucose, 1-thioglucose with cadmium chloride to obtain 1-cadmium-thioglucose. The gold content of the auro thioglucose is about 50 per cent., and the compounds are water soluble.

293,410. ANHYDROUS CHLORIDES FREE FROM OXIDES, PROCESS OF PRODUCTION. A. L. Mond, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, April 6, 1927.

Anhydrous magnesium chloride can be obtained by treating magnesia with hydrochloric acid gas, or magnesia and carbon with chlorine at high temperatures, but the reaction is slow. It is now found that mixtures of anhydrous magnesium chloride or carnallite with a moderate magnesia content which are relatively viscous at the melting point become sufficiently liquid at the higher temperatures to enable them to be employed with coke in an irrigation tower through which chlorine is passed. The tower may be heated externally or by employing the coke as an electrical resistance. Hydrochloric acid gas, chlorine, or phosgene may be passed upwards through the tower. The process is suitable for the dehydration of chlorides of the magnesium chloride type which are liable to decompose at high temperature, such as those of calcium, zinc, lithium, or cerium, and natural or artificial carnallite can be converted into anhydrous fused carnallite.

293,413. PRODUCTION OF GASES, PROCESS OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, April 2, 1927. Addition to 214,544.

Specification No. 214,544 (see THE CHEMICAL AGE, Vol. X, p. 546) describes the production of fuel gas by blowing steam and air upwards through small sized ignited coal with sufficient speed to establish a strong agitation of the material so that it resembles a boiling liquid. In this invention, air or steam is blown upwards through small openings in the form of fine bores or slots in a horizontal water-cooled metal plate which supports the fuel. Only a small number of openings are required even in a large producer. In an example, a producer is described having a shaft area of about 1.2 square metres and provided with a water-cooled plate having upwardly projecting slots 700 by 5 mm. Air is blown through at the rate of 700 cubic metres per hour, and the depth of fuel is about 30 cms. The temperature may be 950°-1,000° C.

293,480. TREATING OILS OR FATS OR FATTY ACIDS FOR THE PRODUCTION OF SULPHURIC ACID COMPOUNDS, PROCESS FOR. E. C. R. Marks, London. From Chemische Fabrik Stockhausen and Cie, 25, Bäkerpfad, Crefeld, Germany. Application date, April 6, 1927.

The object is to enrich the sulphonated parts of the sulphonation products obtained in a known manner from oils or fats to obtain products resembling Turkey-red oil. These products are fatty acid sulphuric acid esters containing more organically bound sulphuric acid than previously obtained. The esters obtained are of the kind represented by the formula :

$$C_6H_{13}CH.CH_2.\ CH=CH.\ (CH_2)_7.\ COOH$$
$$\quad\quad\quad

The finely-divided iodine is obtained by reaction between hydriodic acid and either hypoiodous acid or iodic acid. The precipitation is affected in the presence of a protective colloid less in amount than the quantity of iodine. The presence of iodides or hydriodic acid in the solution long enough to redissolve the precipitated iodine is avoided, and the temperature is kept about 0° C. The process may be carried out by dissolving iodine in a solution of sodium hydroxide whereby a mixture of sodium iodide, sodium hypoiodite and sodium iodate are obtained. A protective colloid such as gum arabic is added, and then an acid such as hydrochloric, which precipitates all the iodine in the free state in colloidal form. A more concentrated colloidal solution can be obtained by allowing the mixture to stand for a long period.

293,572. Gaseous Hydrocarbons from Gas Mixtures Containing Hydrogen and Oxides of Carbon, Process for the Production of. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 13, 1927.

Good yields of gaseous olefines with saturated hydrocarbons are obtained by passing mixtures containing oxides of carbon and hydrogen over catalysts consisting of iron or cobalt, and a noble metal or difficultly reducible oxides of a metal of the sixth group of the periodic system. If the gas mixture is passed at the rate of 20 litres per hour over 50 cubic cm. of catalyst, liquid products are obtained, but no gaseous olefines. If the rate is reduced to 2 litres per hour, about 10-15 per cent. of ethylene, propylene, and butylene are obtained, together with ethane and propane, but no liquid hydrocarbons. The olefines and ethane are removed by first removing the carbon dioxide, and then treating with sulphuric acid or ammoniacal cuprous chloride. Examples are given of the treatment of the gas mixture in a furnace of nickel-chromium alloy with a catalyst of iron and silver, or catalyst obtained by fusing iron powder with uranyl nitrate in oxygen, or a catalyst containing iron and palladium.

293,592. Treatment of Gases for Removal of Hydrogen Sulphide and Carbon Dioxide. M. Aurig, 1, Herchelstrasse, Munich, and G. Brücklmayr, 14, Knöbelstrasse, Munich. Application date, August 24, 1927.

The process is for treating gases containing a larger proportion of carbon dioxide than those which are usually treated with sodium carbonate. The gas is treated with an alkaline lye, which is then treated with an iron compound such as iron hydroxide to convert the alkali sulphide, and with lime to convert the alkali carbonate, so that the lye can be used again. The soda lye is employed in an absorption apparatus, and then flows into a lower vessel containing iron hydroxide which reacts with the sodium hydrosulphide to produce sodium hydroxide and iron sulphide. The lye is then boiled with milk of lime to remove the carbon dioxide, and the calcium carbonate formed is allowed to settle out while the regenerated lye is returned to the washing apparatus. The iron sulphide is oxidised by means of air to regenerate iron hydroxide. The regeneration of the lye by the iron compound may be effected continuously, and the regeneration by means of lime at intervals, when the alkali carbonate content renders it desirable.

293,617. Derivatives of Acridine, Manufacture of. A. J. Green, "Quedgley," Walton-on-Thames. Application date, November 2, 1927.

The object is to obtain acridine derivatives having an antiseptic or bactericidal action but of very low toxicity. This is done by introducing into the molecule of an amido-acridine suitable groups such as the methyl-omega-sulphonic group, CH_2SO_3H, in a position attached to nitrogen. These groups are readily removed upon hydrolysis, and the compound gradually converted into the amido-acridine from which it is derived. The compounds are obtained by treating amido derivatives of acridine or of acridinium salts, the amido groups of which contain one or more hydrogen atoms replaceable by alkyl groups, with an alkaline bisulphite, and an aldehyde such as formaldehyde, acetic aldehyde, crotonic aldehyde, glyoxal, etc. The process is effected in neutral solution with not more than two molecular parts of aldehyde and of bisulphite to each molecular part of acridine or acridinium compound. Examples are given of the preparation of these compounds from 3 : 6-diamido-acridine or 3 : 6-diamido-10-methyl-acridinium chloride. The corresponding leuco compounds can also be employed.

Note.—Abstracts of the following specifications which are now accepted appeared in The Chemical Age when they became open to inspection under the International Convention :—267,554 (I.G. Farbenindustrie Akt.-Ges.) relating to synthetic ammonia, see Vol. XVI, p. 515 ; 268,796 (I.G. Farbenindustrie Akt.-Ges.), relating to conversion of high boiling hydrocarbons into low boiling hydrocarbons, see Vol. XVI, p. 559 ; 268,830 (I.G. Farbenindustrie Akt.-Ges.), relating to benzanthrones, see Vol. XVI, p. 559 ; 269,521 (I.G. Farbenindustrie Akt.-Ges.), relating to production of liquid hydrocarbons, see Vol. XVI, p. 605 ; 269,918 (I.G. Farbenindustrie Akt.-Ges.), relating to dyestuffs, see Vol. XVII, p. 13 ; 273,712 (I.G. Farbenindustrie Akt.-Ges.), relating to destructive hydrogenation of coal tars, mineral oils, etc., see Vol. XVII, p. 222 ; 280,492 (I.G. Farbenindustrie Akt.-Ges.), relating to orange vat dyestuffs of the anthraquinone series, see Vol. XVIII, p. 57 ; 282,619 (F. G. Liljenroth), relating to soluble phosphatic fertilisers, see Vol. XVIII, p. 183 ; 285,394 (Rheinische Kampfer-Fabrik Ges.), relating to inactive menthol, see Vol. XVIII, p. 368.

International Specifications not yet Accepted

291,380. Copper Sulphate. J. P. Bemberg Akt.-Ges., 100, Berlinerstrasse, Rittershausen, Barmen, Germany. International Convention date, May 31, 1927.

Wash liquors and precipitates obtained in the manufacture of cuprammonium silk are treated with sulphuric acid and heated to 130°–140° C. to decompose organic matter and the separated carbon is removed. The remaining liquor is treated to obtain copper sulphate.

291,419. Catalytic Oxidation of Organic Compounds. Selden Co., 339, 2nd Avenue, Pittsburg, U.S.A. (Assignees of A. O. Jaeger, 25, Grandview Avenue, Crafton, Pittsburg, U.S.A.) International Convention date, June 3, 1927.

Organic compounds in vapour form are oxidised by an oxidising gas in the presence of a catalyst and also a "stabiliser" consisting of a compound of an alkali or alkaline earth metal, or metals forming oxides not reducible by hydrogen. Intermediate compounds are thereby obtained. Suitable compounds are acid or neutral sulphates, phosphates, halides, chlorates, nitrates, cyanides, arsenates, antimonates, bismuthates, borates, carbonates, etc. The effectiveness of the catalyst and stabilizer can be increased by adding compounds of heavy metals, or aluminium. By this process, benzol, toluol, phenols, furfurol, can be oxidised to maleic and fumaric acids, cresols to salicyl-aldehyde and salicylic acid, toluol and substituted toluols to aldehydes and acids, naphthalene to naphthoquinone, phthalic anhydride, and maleic acid, anthracene to anthraquinone, phenanthrene to phenanthraquinone, acenaphthene to acenaphthylene.

291,431. Preserving Indiarubber. Silesia Verein Chemischer Fabriken, Ida-und Marienhütte, near Saarau, Silisia, Germany. International Convention date, June 2, 1927.

A compound to retard the ageing of rubber is formed by reaction between polyhydroxy-aldehydes such as aldoses, polysaccharides as milk sugar, or hydrolysed products as glucose, invert sugar, and amines such as aniline, toluidine, xylidine, and α or β-naphthylamine, *m*-toluylene-diamine, urea, or *p*-aminophenol.

291,433–4. Aliphatic Acids. Holzverkohlungs-Industrie Akt.-Ges., Konstanz, Baden, Germany. International Convention date, June 2, 1927.

291,433. Aqueous acetic acid is vaporised and treated with sodium or potassium acetate, or alkali or alkaline earth salts, and the acid salt formed is treated by hot air or in vacuo at 200° C. to recover the acid.

291,434. Aqueous acetic acid is treated with acetone or wood spirit oils, ether, butyl alcohols, etc., and the solution then treated with alkali or alkaline earth acetates which form acid salts. The acetate is heated to 200° C. to expel the acid or it may be used direct in the production of esters.

291,438. Indiarubber. Metallbank und Metallurgische Ges. Akt.-Ges., 45, Bockenheimer Anlage, Frankfort-on-Main, Germany. International Convention date, June 2, 1927.

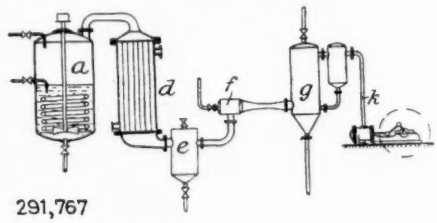
Rubber is vulcanized with compounds obtained by the reaction of hydrogen selenide, ammonia, and aldehydes.

291,748. BUTADIENE AND ITS HOMOLOGUES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, June 7, 1927.

The vapour of 1 : 3-butylene glycol or a homologue is mixed with steam and passed through a tube heated to 240°–250° C. containing potash or ammonium alum dehydrated at 150°–180° C. Butadiene is obtained, and a small quantity of oily intermediate products such as alkyl carbinol and other unsaturated alcohols and ethers. These are separated and again passed over the alum to obtain more butadiene.

291,767. ESTERS. Metallbank und Metallurgische Ges. Akt.-Ges., 45, Bockenheimer, Anlage, Frankfort-on-Main, Germany. International Convention date, June 8, 1927.

Fatty acids or mixtures of oils or fats and fatty acids are neutralised by heating in vacuo with glycerine. The reaction



291,767

vessel *a* is connected to a condenser *d* and separator *e* to remove high boiling substances, and steam ejector *f* reduces the pressure in the reaction vessel to 2 mm. A condenser *g* and vacuum pump *k* follow the ejector.

291,768. DYES. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, June 8, 1927.

Leuco compounds of vat dyes are treated with organic acids containing an exchangeable halogen atom such as monohalogen-acetic acids, β-chlorpropionic acid, and benzyl chloride sulphonic acid. The products are used for printing, development being effected by oxidising agents. Examples are given of the treatment of leuco-thioindigo and indigo white.

Specifications Accepted with Date of Application

267,901. Phenol formaldehyde condensation products, Manufacture of. Kunstharzfabrik Dr. F. Pollak Ges. March 17, 1926.

267,963. Splitting of acetylene. Hydrocarbon Akt.-Ges. für Chemische Produkte. March 20, 1926.

270,698. Conversion of coaly materials into valuable liquid products. I.G. Farbenindustrie Akt.-Ges. May 5, 1926.

272,967. Aliphatic and hydroaromatic sulphonic acids, Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. June 21, 1926.

276,297. Phosphate fertilisers, Manufacture of. L. Adelantado. August 19, 1926.

279,420. Metal cyanamides or mixtures containing the same, Production of. N. Caro and A. R. Frank. October 23, 1926.

283,499. Exothermic synthesis under pressure. Compagnie de Bethune. January 11, 1927.

283,577. 4-alkyl quinolines and derivatives thereof, Process for the manufacture of. Schering Kahlbaum Akt-.Ges. January 14, 1927.

284,286. Increasing the fastness to light of basic dyestuffs, Process for. K. Carpmael and K. S. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*). April 22, 1927.

285,055. Simultaneous production of phosphorus or phosphoric acid and binding agents with latent hydraulic properties. I.G. Farbenindustrie Akt.-Ges. February 10, 1927.

289,879. Sulphuric anhydride and sulphuric acid, Process for the manufacture of. Verein für Chemische und Metallurgische Produktion. May 5, 1927.

294,127. Zinc, Extraction of. A. Roitzheim and W. Remy. April 6, 1927.

294,276. Mixing apparatus, particularly for amalgamating or alloying metals. B. D. Warne and S. Calver. April 21, 1927.

294,284. Azo dyestuffs and their application. British Dyestuffs Corporation, Ltd., and R. Brightman. April 22, 1927.

294,287. Organic tin compounds, Manufacture of. C. T. J. Vautin and C. V. Stephens. April 22, 1927.

294,291. Azo dyestuffs, Manufacture of. K. Carpmael and K. S. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*). April 26, 1927.

294,360. Condensation products of the benzanthrone series and vat dyestuffs containing nitrogen, Manufacture of. I.G. Farbenindustrie Akt.-Ges. May 4, 1927. Addition to 249,891.

294,396. Formates, Process for the manufacture and production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*). September 19, 1927.

294,412. Latex, Preservation and treatment of. J. Y. Johnson. *I.G. Farbenindustrie Akt.-Ges.*). November 12, 1927.

294,415. Cellulose acetate, Manufacture of. G. W. Morden. November 25, 1927.

Utilisation of Coke Oven By-Products

German Steel Company's Plans

THE huge German syndicate of coal and steel producers known as the United Steel Works Corporation will this year complete the construction of additional units to its works at Hamborn, bringing their capacity up to 2,500,000 tons of raw steel annually, which, it is claimed, will make this plant the largest in Europe. One of the most important steps in the construction of the Hamborn plant has been the installation of two large cokeries for the supply of fuel to the works, the coke-coal for the cokeries being supplied from the Corporation's mines. The United Steel Works are now both the largest producer and largest consumer of coke in Europe, their production amounting in the last business year to 8,204,878 tons.

A feature of the economic methods at which Germany is aiming is the utilisation for commercial purposes of the waste gas produced by the Steelworks' cokeries. Apart from the production of approximately 3,000 million cubic metres of surplus flue gas, now used for the heating of the cokery ovens, the United Steel Works produce annually 2,500 million cubic metres waste coke-oven gas—an amount equal to five times the requirements of the City of Berlin. Of this, 2,000 million cubic metres are consumed by the corporation's own works, leaving 500 million cubic metres surplus gas.

Instead of constituting a dead loss to the company, this surplus coke-oven gas is now profitably disposed of through two recently formed companies, in both of which the United Steel Works, in association with the U.S. banking firm of Dillon Read and Co., has a controlling interest. The first of these, the Ruhr Gas Corporation, has undertaken the supply of far-distant cities such as Hamburg and Hanover with Ruhr gas, brought from the source of production in pipe-lines many hundreds of miles long. In addition, all means of utilising waste cokery gas by chemical processes, particularly that of ammonia synthesis, are being investigated by the second of these two subsidiary enterprises, the Ruhr Chemicals Corporation. This company is particularly occupied with the production of synthetic fertilisers from coke-oven gas, and the first plant, now in course of construction at Holten, near the Rhine, is equipped to produce 20,000 tons of fertilisers annually.

Utilisation of Anhydrite in Cement Retardation

THERE is a wide variation in the physical properties of anhydrite as it occurs in nature, and since only one sample of anhydrite was utilised by the United States Bureau of Mines in its former investigation concerning the action of anhydrite as a retarder for Portland cement, the Bureau was urged to conduct further work to determine whether the type of anhydrite of its degree of fineness might not have an appreciable effect upon its action as a retarder. The tests which were originally outlined to cover this problem have been practically completed. The information obtained so far seems to justify the following tentative conclusions : It is practically essential that the clinker and retarder be ground together if consistent results are to be obtained in any investigation of this type. The type of anhydrite has no marked relation to its action as a retarder, but the fineness of the retarder is of considerable importance, particularly as regards its effect upon the plasticity of the cement. If the cement is properly retarded all forms of calcium sulphate will produce practically the same quality of cement. While cement of good quality has been obtained by using anhydrite as a retarder, the variation in the properties of the cement clinker itself makes it essential that information be obtained concerning the retarding action of calcium sulphate before stating definitely which form, if any, is the most efficient retarder for Portland cement clinker.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC. 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 3d. to 1s. 8d. per gall.; pyridinised industrial, 1s. 5d. to 1s. 10d. per gall.; mineralised, 2s. 4d. to 2s. 8d. per gall.; 64 O.P., 1d. extra in all cases.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6½d. to 6¾d. per lb. Crude 60's, 2s. 2d to 2s. 2½d. per gall. prompt.

ACID CRESYLIC 99/100.—2s. 7d. to 3s. per gall. 97/99.—2s. 6d. to 2s. 7d. per gall. Pale, 95%, 2s. 4d. to 2s. 5d. per gall. Dark, 2s. 1d. to 2s. 2d.

ANTHRACENE.—A quality, 2½d. per unit. 40%, £5 per ton.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7¾d. to 8d. per gall.

BENZOLE.—Prices at works: Crude, 10½d. to 11d. per gall.; Standard Motor, 1s. 4½d. to 1s. 5d. per gall.; 90%, 1s. 7d. to 1s. 8d. per gall.; Pure, 1s. 10d. to 1s. 11d. per gall.

TOLUOLE.—90%, 1s. 6d. to 2s. per gall. Firm. Pure, 2s. 2d. per gall.

XYLOL.—1s. 3d. to 1s. 11d. per gall. Pure, 1s. 6d. to 1s. 7d. per gall.

CREOSOTE.—Cresylic, 20/24%, 9d. per gall.; middle oil, 7d. to 8d. per gall. Heavy, 8½d. per gall. Standard specification, 6½d. to 6¾d. ex works. Salty, 7½d. per gall.

NAPHTHA.—Crude, 8½d. to 9d. per gall. Solvent 90/160, 1s. 1½d. to 1s. 2½d. per gall. Solvent 95/160, 1s. 2d. to 1s. 7d. per gall. Solvent 90/190, 11d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed, £8 per ton. Hot pressed, £8 10s. to £9 per ton.

NAPHTHALENE.—Crystals, £13 to £14 10s. per ton. Quiet. Flaked, £14 to £15 per ton, according to districts.

PITCH.—Medium soft, 47s. 6d. to 57s. 6d. per ton, f.o.b., according to district. Nominal.

PYRIDINE.—90/140, 5s. to 6s. per gall. 90/180, 3s. to 4s. per gall. Heavy, 2s. 6d. to 3s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100 %.

ACID BENZOIC.—1s. 8½d. per lb.

ACID GAMMA.—4s. 6d. per lb.

ACID H.—3s. per lb.

ACID NAPHTHIONIC.—1s. 6d. per lb.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb.

ACID SULPHANILIC.—8½d. per lb.

ANILINE OIL.—8d. per lb. naked at works.

ANILINE SALTS.—8d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—5½d. per lb.

m-CRESOL 98/100%.—2s. 3d. to 2s. 6d. per lb.

p-CRESOL 32/34° C.—2s. 3d. to 2s. 6d. per lb.

DICHLORANILINE.—2s. per lb.

DIMETHYLANILINE.—1s. 11d. per lb.

DINITHROBENZENE.—8½d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—10d. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb.

B-NAPHTHYLAMINE.—3s. per lb.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 8d. per lb.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb.

R. SALT.—2s. 2d. per lb.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—8d. per lb.

p-TOLUIDINE.—1s. 10d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.

N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.

CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.

IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.

WOOD TAR.—£4 to £5 per ton.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity. drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¾d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPHONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHUR.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 7d. to 2s. 8d. per lb.

ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. to 1s. 4d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 10d. to 1s. 11d. per lb. Less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
ACID, SALICYLIC, B.P. PULV.—1s. 4½d. to 1s. 6d. per lb. Technical.—10½d. to 11½d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 4½d. to 1s. 5d. per lb., less 5%.
ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.
AMIDOL.—7s. 6d. to 9s. per lb., d/d.
AMIDOPYRIN.—8s. to 8s. 3d. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity. 18s. per lb. ex Gum.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb.
ATROPINE SULPHATE.—9s. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—9s. 9d. per lb.
BISMUTH CITRATE.—9s. 3d. per lb.
BISMUTH SALICYLATE.—8s. 9d. per lb.
BISMUTH SUBNITRATE.—8s. 3d. per lb.
BISMUTH NITRATE.—Cryst. 5s. 9d. per lb.
BISMUTH OXIDE.—12s. 3d. per lb.
BISMUTH SUBCHLORIDE.—10s. 9d. per lb.
BISMUTH SUBGALLATE.—7s. 9d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts., 11d. per lb.
BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Ammonium, 2s. 1d. to 2s. 3d. per lb.; potassium, 1s. 9¾d. to 1s. 11d. per lb.; sodium, 2s. to 2s. 2d. per lb.; granulated, ½d. per lb. less; all spot. Large quantities at lower rates.
CALCIUM LACTATE.—B.P., 1s. 2½d. to 1s. 4½d. per lb.
CAMPHOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.
CHLOROFORM.—2s. 4½d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—S.G. ·730—11d. to 1s. 0d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE.—£39 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—4s. 9d. to 5s. per lb.
HEXAMINE.—2s. 3d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.
HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28 lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE.—B.P., 2s. 6d. to 2s. 9d. per lb. Green, 2s. 9d. to 3s. 2d. per lb.; U.S.P., 2s. 7d. to 2s. 10d. per lb.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
IRON QUININE CITRATE.—B.P., 8¾d. to 9¼d. per oz.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.
MENTHOL.—A.B.R. recrystallised B.P., 22s. per lb. net for January delivery; Synthetic, 9s. to 10s. per lb.; Synthetic detached crystals, 9s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 5d. to 1s. 9d. per lb.
METHYL SULPHONAL.—9s. to 9s. 3d. per lb.
METOL.—9s. to 11s. 6d. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 1d. to 1s. 4d. per lb.
PHENACETIN.—2s. 6d. to 2s. 9d. per lb.
PHENAZONE.—4s. to 4s. 3d. per lb.
PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—98s. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P.C., 2s. 4d. to 2s. 7d. per lb.; U.S.P., 2s. 3d. to 2s. 6d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins.
RESORCIN.—2s. 10d. to 3s. per lb., spot.
SACCHARIN.—47s. per lb.; in quantity lower.
SALOL.—2s. 4d. per lb.
SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.
SODIUM CITRATE, B.P.C., 1911—2s. 1d. to 2s. 4d. per lb., B.P.C. 1923—2s. 5d. to 2s. 6d. per lb. U.S.P., 2s. 4d. to 2s. 7d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—95s. to 100s. per cwt. Crystals, 4s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 6d. to 1s. 9d. per lb. Crystal, 1s. 7d. to 1s. 10d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.
SULPHONAL.—6s. 9d. to 7s. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 3d. per lb.
THYMOL.—Puriss., 9s. 6d. to 9s. 9d. per lb., according to quantity. Firmer. Natural, 14s. 3d. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—10s. per lb.
AMYL ACETATE.—2s. 6d. per lb.
AMYL BUTYRATE.—4s. 9d. per lb.
AMYL SALICYLATE.—2s. 9d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 3d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL—2s. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb.
COUMARIN.—9s. 6d. per lb.
CITRONELLOL.—13s. 6d. per lb.
CITRAL.—8s. 3d. per lb.
ETHYL CINNAMATE.—6s. per lb.
ETHYL PHTHALATE.—2s. 6d. per lb.
EUGENOL.—10s. 6d. per lb.
GERANIOL (PALMAROSA).—23s. per lb.
GERANIOL.—6s. 6d. to 11s. per lb.
HELIOTROPINE.—4s. 6d. per lb.
ISO EUGENOL.—14s. 6d. per lb.
LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.
LINALYL ACETATE.—Ex Shui Oil, 14s. 6d. per lb. Ex Bois de Rose, 18s. 6d. per lb.
METHYL ANTHRANILATE.—8s. 6d. per lb.
METHYL BENZOATE.—4s. per lb.
MUSK KETONE.—35s. per lb.
MUSK XYLOL.—7s. per lb.
NEROLIN.—3s. 6d. per lb.
PHENYL ETHYL ACETATE.—11s. per lb.
PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.
RHODINOL.—38s. per lb.
SAFROL.—1s. 6d. per lb.
TERPINEOL.—1s. 6d. per lb.
VANILLIN.—16s. 6d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. 6d. per lb.
ANISE OIL.—2s. 9d. per lb.
BERGAMOT OIL.—26s. per lb.
BOURBON GERANIUM OIL.—20s. per lb.
CAMPHOR OIL.—9d. per lb.
CANANGA OIL, JAVA.—12s. per lb.
CINNAMON OIL LEAF.—6s. 9d. per oz.
CASSIA OIL, 80/85%.—7s. 6d. per lb.
CITRONELLA OIL.—Java, 2s. per lb., c.i.f. U.K. port. Ceylon, pure, 2s. per lb.
CLOVE OIL (PURE 90/92%).—7s. 3d. per lb.
EUCALYPTUS OIL, AUSTRALIAN, B.P. 70/75%.—2s. 1d. per lb.
LAVENDER OIL.—Mont Blanc, 48/50%, Esters, 15s. 9d. per lb.
LEMON OIL.—14s. 6d. per lb.
LEMONGRASS OIL.—4s. 3d. per lb.
ORANGE OIL, SWEET.—30s. per lb.
OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 75s. per oz.
PALMA ROSA OIL.—13s. 9d. per lb.
PEPPERMINT OIL.—Wayne County, 14s. 6d. per lb.; Japanese, 8s. 3d per lb.
PETITGRAIN.—7s. 3d. per lb. Sandalwood, Mysore, 26s. 6d. per lb., 90/95%, 16s. 6d. per lb.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinion.*

Glasgow, August 8, 1928.

THE Scottish heavy chemical market has been rather more active during the past week, but there is still little evidence of any important inquiry going around. Prices remain on about the same level as last reported.

Industrial Chemicals

ACETONE, B.G.S.—£64 to £67 per ton, ex store, according to quantity.

ACID ACETIC.—98/100% glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure £37 10s. per ton, ex wharf; 80% technical £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton; powder £32 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Quoted 6½d. per lb., delivered or f.o.b. U.K. ports.

ACID CITRIC, B.P.—Offered for spot delivery at 1s. 11d. per lb., less 5%, ex store. Quoted 1s. 10¾d. per lb., less 5%, ex wharf to come forward.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC.—80° quality, £24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer from the Continent at 3¼d. per lb., ex wharf. Spot material quoted 3½d. per lb., ex store. In better demand.

ACID SULPHURIC.—£2 15s. per ton, ex works, for 144° quality, £5 15s. per ton for 168° quality. Dearsenicated quality 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 1s. 4½d. per lb., less 5%, ex wharf, but this price could probably be shaded.

ALUMINA SULPHATE.—On offer at £5 10s. per ton, c.i.f. U.K. ports. Spot material quoted £5 15s. per ton, ex store.

ALUM, LUMP POTASH.—Quoted £8 7s. 6d. per ton, c.i.f. U.K. ports, prompt shipment from the Continent. Crystal meal quoted £8 10s. per ton, ex store.

AMMONIA, ANHYDROUS.—Quoted ½d. per lb. carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump £37 per ton, powdered £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE, 98/100%.—Spot material available at about £44 per ton, ex store, but considerably cheaper prices are quoted for prompt shipment.

ARSENIC, WHITE POWDERED.—On offer for prompt despatch from mines at £19 per ton, ex wharf. Spot material quoted £20 per ton, ex store.

BARIUM CARBONATE, 98/100%.—English material on offer at £7 5s. per ton, ex store. Continental quoted £7 per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE.—Still scarce for spot delivery and price round about £9 per ton, ex store named. Offered from the Continent about £7 15s. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—British manufacturers' contract price to consumers £6 12s. 6d. per ton, delivered, minimum 4-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price, £4 5s. to £4 15s. per ton, according to quantity and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—On offer from the Continent at about £23 15s. per ton, c.i.f. U.K. ports, but spot parcels of British material offered at about £23 per ton, ex store.

FORMALDEHYDE, 40%.—Quoted £35 10s. per ton, c.i.f. U.K. ports. Spot material on offer at £38 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material on offer at £31 per ton, ex store.

LEAD, WHITE.—£35 15s. to £37 per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals quoted £41 15s. per ton, ex store. Brown on offer at about £40 per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store in moderate demand.

METHYLATED SPIRIT.—Industrial quality, 64 O.P., now quoted 1s. 4d. per gallon, less 2% delivered.

POTASSIUM BICHROMATE.—4½d. per lb., delivered, minimum 4 ton lots. Under 4-ton lots ¼d. per lb. extra.

POTASSIUM CARBONATE, 96/98%.—Quoted £25 10s. per ton, c.i.f. U.K. ports. Crystals 30s. per ton extra. B.P. quality crystals or powder offered at £32 per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99¾/100%.—Powder, rather cheaper, and price named from Continent now about £22 15s. per ton, c.i.f. U.K. ports. Crystals, 20s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 5¼d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Rather scarcer for spot delivery and now 6⅝d. per lb., ex store. Offered from the Continent at 6¼d. per lb., ex wharf, prompt shipment.

SODA, CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton, and 70/72%, £13 12s. 6d. per ton, minimum 4-ton lots, carriage paid on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—Spot material on offer at about £22 per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3d. per lb., delivered buyer's works, minimum 4-ton lots. Under 4 and over 2-ton lots 1/16d. per lb. extra. Under 2-ton lots, 3⅛d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, 27s. 6d. per ton extra. Light soda ash, £7 3s. 9d. per ton, ex quay, minimum 4-ton lots with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots.

SODIUM NITRATE.—Quoted £11 per ton, ex store.

SODIUM NITRITE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE.—In moderate demand. Spot material quoted 4¾d. per lb., ex store.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works, 52s. 6d. per ton delivered for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption :—solid, 60/62%, £9 per ton; broken, 60/62%, £10 per ton; crystals, 30/32%, £7 2s. 6d. per ton, delivered, buyers' works on contract, minimum 4-ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; ground American, £9 5s. per ton, ex store.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100% solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports. Powdered, 20s. per ton extra.

ZINC SULPHATE.—Quoted £11 per ton, ex wharf, prompt shipment from the Continent.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

New Talc Industry for Alberta

A COMPANY known as National Talc, Ltd., proposes to establish a talc industry at Calgary in the near future. Mr. W. H. Matthews, of Toronto, general manager of the company, who is responsible for the development of the blue talc deposits of Red Mountain and of the white talc deposits on Mount Whymper, both in the Canadian National Park at Banff, stated recently that the blue talc is found at an elevation of 7,500 ft. on Red Mountain in a vein 250 ft. in width and 1,500 ft. in length, of unknown depth.

The deposit is claimed to be the only one of its kind in North America. Heat treated, it is largely used for manufacture into mineral lava for insulation, for spark plugs, linings for digesters in pulp plants and for baffle blocks in electric furnaces. The American Lava Corporation has had to import its supplies from China, Italy and India. Now it has placed an order for a large quantity annually with National Talc, Ltd., and Mr. Matthews understands that the Corporation will instal in a suitable location a complete working laboratory for testing the material before shipment.

Manchester Chemical Market

[From Our Own Correspondent.]

Manchester, August 9, 1928.

Chemical traders on the market here were prepared for a slack period this week, and they have had it. The attendance on the markets has been much below the average, and the total volume of business done has been smaller than usual. Apart from the general effect of the Bank Holiday there is the special result, and a serious one for the chemical trade, of cotton mill towns succeeding one another for their annual "wakes," quite apart from the fact that short time working in this industry has a very appreciable influence on the demand for a wide range of chemicals.

Heavy Chemicals

Saltcake still fails to attract more than a limited amount of buying interest, but quotations in this section remain at about £2 12s. 6d. per ton. Contract prices for caustic soda range from £13 7s. 6d. to £15 7s. 6d. per ton, according to quality, with the demand during the past week rather slower than usual. Glauber salts are a little firmer than they have been of late at round £2 15s. per ton, though inquiry for this continues slow. Sulphide of sodium is moving off in moderate quantities and values have been maintained, the 60–65 per cent. concentrated solid quality being offered at about £9 15s. per ton, and commercial material at from £7 10s. to £8. A fair business is being done in the case of bicarbonate of soda, and quotations for this are well held at round £10 10s. per ton. There is not much stirring in chlorate of soda just now, and prices have an easy tendency at 3d. per lb., or a trifle below this. Offers of phosphate of soda are being made at occasionally lower prices, current values in this section ranging from £12 to £12 10s. per ton. Hyposulphite of soda meets with a quiet demand, and values are about unchanged on the week at £15 10s. per ton for photographic and £9 5s. for commercial. Prussiate of soda is in moderate request, and quotations are firm at 4½d. to 5¼d. per lb., according to quantity. Offers of bichromate of soda this week have been at 3d. to 3¼d. per lb., with a moderate business being transacted. Bleaching powder has met with a rather slow inquiry at from £6 15s. to £7 per ton. Alkali keeps firm and meets with a quietly steady demand at round £6 2s. 6d. per ton.

Inquiry for carbonate of potash this week has been somewhat slow, with current offers of this varying from £25 to £25 10s. per ton. Caustic potash, however, remains firm at from £33 5s. per ton for prompt delivery of one to five-ton lots, and a moderate business is being put through. Permanganate of potash is moving off in about its usual limited quantities, and prices are easy at about 4⅞d. per lb. for the commercial product and 5d. for the B.P. Bichromate of potash is quoted to-day at 4⅛d. per lb., and chlorate at about 3d. per lb., but in neither case is the demand at all active just now. Yellow prussiate of potash keeps steady, and meets with some inquiry at from 6¾d. to 7⅛d. per lb.

Although not actually changed on the week the tendency in the case of arsenic, in view of the continued absence of any important buying, is still easy, with offers of white powdered Cornish makes at about £17 per ton at the mines. A quiet trade is passing on this market in sulphate of copper, with quotations at from £25 15s. to £26 per ton, f.o.b. Acetate of lime is rather inactive at the moment, and somewhat lower prices are being indicated, brown quality offering at round £9 per ton, and grey at £16 5s. Acetate of lead is quiet but unchanged at £40 per ton for white and £39 for brown, with nitrate still obtainable at between £36 10s. and £37.

Acids and Tar Products

A fair business is going through in the case of acetic acid, and values in this section are maintained at about £36 10s. per ton for 80 per cent. commercial quality and £67 for glacial. Oxalic acid is steady and in moderate request at 3½d. per lb. Citric acid is quiet and uncertain at round 1s. 10½d. per lb., with tartaric acid currently quoted at about 1s. 3¾d. per lb.

Buying interest in pitch remains relatively slow, with prices weaker and more or less nominal in the neighbourhood of £2 7s. 6d. per ton, f.o.b. Carbolic acid is fairly steady, with crude material offering at about 2s. 2d. per gallon and crystals at 6⅜d. to 6½d. per lb. Creosote oil meets with a quiet demand at from 6½d. to 6¾d. per gallon. Solvent naphtha is steady at round 1s. 2d. per gallon.

London Chemical Market

Owing to the holidays, there is no market report this week. There have been no material changes in prices.

Nitrogen Products

Export.—During the week the market has continued firm at £9 3s. 6d./£9 5s. 6d. per ton f.o.b. U.K. port in single bags. It is understood that good sales have been made to the sugar growing colonies.

Home.—The announcement of the home prices has stimulated interest in sulphate of ammonia, but as immediate requirements are negligible prompt sales have been small. It is understood that some of the large merchants have been covering their spring requirements. The new price scale has caused little comment.

Nitrate of Soda.—The market for nitrate of soda has been dull pending the reports of the meeting held at Valparaiso on August 9, when the discussions commenced on the centralised selling policy which the Chilean Government consider desirable for the industry. The price remains at 16s. 4d. per metric quintal f.a.s. Chile, for prompt shipment, with slightly higher prices for forward.

Calcium Cyanamide Autumn Prices

Cyanamide, which contains 20·6 per cent. nitrogen, is supplied in 4-ton lots carriage paid to any station in Great Britain for autumn delivery at the following prices:—Packed in about 2 cwt. bags, August £9 per ton, September £9 2s. per ton, October £9 4s. per ton, November £9 6s. 6d. per ton, December £9 9s. 6d. per ton, net prompt cash. For lots of less than 4 tons, but not less than 2 tons, 5s. per ton additional; for lots of less than 2 tons, but not less than 1 ton, 10s. per ton additional.

Latest Oil Prices

LONDON.—August 8.—Linseed Oil quiet and 2s. 6d. to 5s. lower. Spot, ex mill, £28 15s.; August and September-December £27 15s.; January-April, £28 7s. 6d.; May-August, £28 17s. 6d., naked. Rape Oil dull and 10s. lower. Crude extracted, £40 10s.; technical refined, £42 10s., naked, ex wharf. Cotton Oil easy and 30s. lower. Egyptian crude, £32; refined common edible, £37 10s.; deodorised, £39 10s., naked. Turpentine inactive. American, spot, 42s. 6d.; September-December, 43s. 6d. per cwt.

HULL.—August 8.—Linseed Oil.—Spot and August, £27 17s. 6d.; September-December, £28; January-April, £28 10s. Cotton Oil.—Bombay, crude, £29 10s.; Egyptian, crude, £30 5s.; edible, refined, £35; technical, £33 15s.; deodorised, £37. Palm Kernel Oil.—Crushed, naked, 5½ per cent., £37 15s. Groundnut Oil.—Crushed/extracted, £39; deodorised, £43. Soya Oil.—Extracted and crushed, £32; deodorised, £35 10s. Rape Oil.—Crude/extracted, £40 15s.; refined, £42 15s. per ton net, cash terms, ex mill.

South Wales By-Products

South Wales by-product activities have been cramped by the holidays, little or no business having been done. Prices generally are unchanged. Pitch, for which a good demand is anticipated immediately after the holidays, is steady at from 56s. to 60s. per ton delivered. Refined tars were in good demand up to last week-end, and values are unchanged, coke oven tar changing hands at from 7¾d. to 8d. per gallon delivered, and gasworks tar at from 7½d. to 7¾d. per gallon delivered. Crude tar is unchanged at from 55s. to 60s. per ton f.o.r. maker's works. Crude naphthalene is steady round about 80s. per ton f.o.r. maker's works, while the same remark applies to whizzed at about 90s. per ton f.o.r. maker's works Patent fuel and coke exports continue to be unsatisfactory, but prices are unchanged. Patent fuel changes hands at from 20s. 6d. to 22s. per ton; coke, best foundry, 32s. 6d. to 37s. per ton, furnace 19s. to 21s., and other sorts from 25s. to 32s. 6d. per ton.

Extension of Harvey's Works

G. A. Harvey and Co. (London), Ltd., of Woolwich Road, London, announce that the increasing demand for their products has necessitated a large extension of their works. A new building with a floor space of over 100,000 square feet has just been completed, and plant of the latest type is shortly to be installed for the production of sheet metal work on a largely extended scale. The new structure, which is brick built, and roofed with glass and corrugated asbestos sheets, is 500 feet long, 250 feet wide, and 38 feet high. This new addition to Harvey's plant will add considerably to their capacity for production on the most economical and efficient lines, as well as giving employment to an additional 500 or 600 people.

Company News

LINOLEUM MANUFACTURING CO.—The directors have declared an interim dividend of 7½ per cent., free of income tax, payable on September 15.

INTERNATIONAL PAINT AND COMPOSITIONS.—The directors have declared the usual interim dividend payable on September 29, of 3 per cent., less income tax, on the preference shares, and 3 per cent. interim dividend, less tax, on the ordinary shares. (Same as last year.)

YORKSHIRE ARTIFICIAL SILK CO., LTD.—The statutory report states that the total number of shares allotted is 225,000 10 per cent. preferred ordinary shares of £1 each and 675,000 deferred shares of 2s. each. On each of preferred ordinary shares £1 is payable, or has been paid, in cash, and on each of deferred shares 2s. is payable, or has been paid, in cash. Total amount of cash received in respect of shares issued wholly for cash is £210,877, and receipts on revenue account amount to £11, making £210,888.

BENN BROTHERS, LTD.—The report for the year ended June 30 states that net profit amounts to £44,627, to which is added balance brought forward of £18,756, making a total of £63,383. The directors have allocated £1,500 to leasehold reserve and £10,891 to general reserve, leaving £50,992. The directors recommend a final dividend of 3 per cent. on the preference shares, making 6 per cent. for the year, a final dividend of 11¼ on the ordinary shares, making 17½ for the year, and a final dividend of 2s. 3d. per share on the deferred shares, making 3s. 6d. for the year. The amount carried forward is £19,355.

B. LAPORTE, LTD.—The report for year ended June 30, 1928, states that after making usual transfer to reserve account and after charging directors' fees and making adequate provision for depreciation, writing off bad debts and certain capital losses, profit is £12,704, to which is added brought forward of £6,095, making £18,799. The board is of opinion that this year's amount to be distributed in dividend should be balance available out of profits of year, but it is providing out of amount brought in a transfer to income tax suspense account £1,100, and writing off investment account £800. The directors recommend a dividend on ordinary shares at rate of 3 per cent., payable less income tax. Carry forward, therefore, is £4,479, as against £6,095 brought in. The meeting will be held at Luton on Monday, August 13.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal" have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

CHEMICALS, ETC.—A firm in Vienna desires to secure the representation of British exporters of phenol, caustic soda and amorphous phosphorus (Reference No. 113.)

CHEMICALS FOR LEATHER INDUSTRY.—An agent in Fiume desires to secure the representation of British manufacturers of chemicals for the leather industry. (Reference No. 122).

DISINFECTANT FLUID.—The South African Railways and Harbours Administration is inviting tenders (Tender No. 1291) to be presented in Johannesburg by September 20, 1928, for the supply of approximately 27,400 imperial gallons of disinfectant fluid. Firms may obtain further particulars upon application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. (Reference No. B.X. 4632.)

THE NITRATE CENTRALISED SALES SCHEME has been discussed at numerous meetings during the past fortnight, both in London and Valparaiso. A meeting of producers was called for August 9 in the latter centre, when amendments to the present statutes, necessary to put the scheme into operation, were to be submitted. A majority of 90 per cent. of the producers is necessary to carry this out.

A GENERAL MEETING of the holders of the 7 per cent. First Mortgage Debenture stock of the Anglo-Chilean Nitrate Corporation, Ltd., was held on Friday, August 3, at Winchester House, to consider a special resolution providing for the creation of an alternative register of the debenture stockholders in New York in order to facilitate the transfer of that security. As the requisite number of stockholders were not present, the chairman declared the meeting formally adjourned until Monday, August 20.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks, and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to September 1, 1928.

"DYECRETE."

477,789. Class 1. Miner dyes. Scottish Dyes, Ltd., Earls Road, Grangemouth, Stirling, Scotland; manufacturers. February 14, 1927. (To be Associated. Sect. 24.)

"SILVOL."

489,250. Class 1. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Reckitt and Sons, Ltd., Kingston Starch Works, Dansom Lane, Hull, Yorkshire; manufacturers. March 8, 1928. (To be Associated, Sect. 24.) (By Consent.)

"DYANESE."

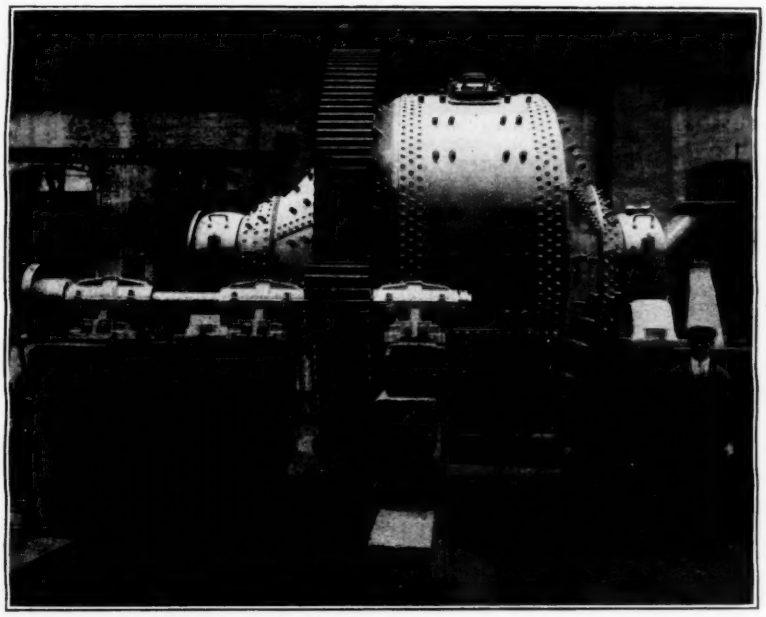
491,105. Class 3. Synthetic dyes (not mineral and not for toilet purposes). Sydney Milton Tootal, 51, Broadway, Blackpool, Lancashire; manufacturer. May 4, 1928.

Domestic Production of Fertilisers in South Africa

THE possibility of exploiting apatite—a crystalline phosphatic rock discovered in the Zoutpansberg district of the Transvaal—on a payable basis, has suggested the possibility of supplying South African farmers with home-produced phosphates. The Fertiliser Act rules that no fertiliser can be sold in South Africa without the invoice tallying with the formulæ registered with the Department of Agriculture. Phosphatic rock, finely ground for direct application to the soil, must contain at least 15 per cent. of phosphoric oxide. This restriction has made it difficult to produce a saleable mine apatite, properly graded and hand sorted, in the Union. The oil-flotation method has been tried by the South African Phosphatic Exploration Syndicate, Ltd., at Bandolier Kop, and after some years of steady work, they have decided that this process is suitable for treating the rock. It is intended now to produce a rock meal containing a satisfactory percentage of felspathic potash. The prices of the various grades will be fixed according to unit values of phosphatic oxide. The product is expected to have a very fine degree of comminution. Probably 80 per cent. will pass a 200-mesh screen. It is owing to this exceeding fineness, and, possibly, to some extent, to the potash it contains, that its success as a fertiliser is due, and it is expected to become a serious competitor of superphosphate.

Unexpected Behaviour of Ferrous Oxide

THE Pacific Experiment Station of the United States Bureau of Mines, Department of Commerce, in its work on the determination of the physical and chemical properties of the oxides of metallurgically important substances, has encountered the problem of preparing pure ferrous oxide. It seems to have been prepared pure by previous investigators only in minute amounts of less than $\frac{1}{10}$ gm., whereas samples of several pounds are desired for the usual determinations of specific heats, heats of formation, etc. The oxide is metastable below 500° or 600° C., and must be prepared above and rapidly chilled through this range, even to produce relatively impure material. A common method of preparation has attempted to reduce magnetite by means of metallic iron. Experiments carried out in a specially designed high-frequency induction furnace of vacuum type, and provided with a specially efficient means of chilling the product, showed that repeated treatments of fused iron oxidise with pure iron, between the melting point of the oxide and that of the iron, consistently gave only about 85 per cent. limiting purity. This constitution seems to be a steady or equilibrium condition, and the proof that such limits exist has important bearing on certain problems involving ferrous oxide, not only in connection with the metallurgy of iron, but also with studies of the condition of copper-smelter, slags and mattes.



10 in. dia. Hardinge Mill erected at Works.

£75,000 for Fine Grinding

One Chemical Company have placed orders for Hardinge Mills for the above-mentioned value within the last 2 years.

Low Maintenance—Absolute Reliability—Controlled Fineness, these factors are responsible for the increasing application of the Hardinge Mills in many Industrial fields.

British Built Throughout.

INTERNATIONAL COMBUSTION LTD

GRINDING & PULVERIZING OFFICES
11, Southampton Row, London, W.C.1.

Telephone: Holborn 7217 8 Cable & Telegraphic Address: "Lopulco, Westcent, London."

WORKS: — DERBY — ERITH.

Hardinge Mills

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case, the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

MANLEY AND CO. (WOLVERHAMPTON), LTD., lacquer manufacturers. (M., 11/8/28.) Registered July 17, £500 debentures; general charge.

Receiverships

CHARLES BILLING AND CO., LTD. (R., 11/8/28.) P. E. Slack, of 44, Bedford Row, W.C., was appointed receiver and manager on July 25, 1928, under powers contained in debentures dated March 21, 1927, to January 20, 1928.

London Gazette, &c.

Partnership Dissolved

OURY MILLAR AND CO. (Sydney John OURY and Joseph Patrick MADDEN), gelatine and glue merchants, 4, Queen Street Place, by mutual consent as from April 30, 1928. Debts received and paid by S. J. Oury. The business to be carried on by S. J. Oury.

New Companies Registered

AFRICAN CHROME MINES, LTD.—Registered as a private company on August 4 with a nom. capital of £800,000 in £1 shares. To acquire mines, farms, minerals, and landed properties, grants, concessions and rights in Africa or elsewhere; to adopt agreements (1) with the Rhodesia Chrome Mines, Ltd., and (2) with the Rhodesian Chrome and Asbestos Co., Ltd., and to carry on the business of miners, dredgers, dealers in chrome, iron, lead, copper, gold and silver, engineers, shipowners, etc. The directors are Sir Edmund Davis, Sydney H. Boileau, and Sir Abe Bailey, Bt.

ASSOCIATED CONSTRUCTION AND POWER CO., LTD.—Registered as a private company on August 7, with a nom. capital of £10,000 in £1 shares. The objects are to carry on the business of constructional, mechanical and electrical engineers, public works and general contractors, manufacturers of bridges and steel frame buildings, iron-founders, smiths, woodworkers, builders, shipwrights, dredgers, tug owners, smelters of ore, salt refiners, chemical manufacturers, etc. The subscribers are: A. E. Harrison, 155, Amesbury Avenue, S.W.2, solicitor's clerk, and E. A. Keyse.

BRITISH CALOL ASPHALT CO., LTD.—Registered as a private company on August 1, with a nom. capital of £100 in £1 shares. To carry on the business of general merchants, financial or other agents, warehousemen, manufacturers, importers and exporters of and wholesale and retail dealers in bitumin, asphalt, shale, rock, ozokerite, clay, coal, pitch, tar, sand, ores, minerals, petrol, oil, chemicals, etc. Directors: W. J. Carnegie, 18, Alleyn Park, Dulwich, S.E.21; E. W. Randall.

GOWING ENGINEERING AND CHEMICAL PRODUCTS, LTD.—Private company. Registered August 2. Capital, £600 in £1 shares. To carry on the business of inventors, experimenters, testers, manufacturers, importers and exporters of and dealers in chemicals and chemical products of all kinds; also bacteriological, electrical, photographical, magnetic, radio and other scientific and allied products, etc. A subscriber: E. C. Gowing, 45, Monkhams Avenue, Woodford Green, Essex, mechanical engineer.

OURY MILLAR AND CO., LTD.—Private company. Registered August 4. Capital, £10,000 in £1 shares. To acquire the business of S. J. Oury with such of the assets, as may be determined upon, and to carry on the business of manufacturers of and dealers in glue, glucose, gums, glucine, isinglass, gelatine, chemicals, bones, bone dust and meal, essential oils and essences of oils, oleaginous substances unguents, fats and tallows, bone boilers, crushers, tallow melters, refiners, glycerine distillers, oil refiners, etc. A subscriber: S. M. Gibson, 53, Grange Road, Sutton, Surrey, solicitor.

SLATER AND PALMER, LTD.—Registered as a private company on July 27. Nom. capital, £50,000 in £1 shares. Objects:—To acquire the business of a printing ink, dry black, dry colour, varnish and chemical manufacturer carried on by F. R. Palmer, at 4-5, Wine Office Court, Fleet Street, E.C., and at Marshgate Nills, Marshgate Lane, Stratford, Essex. Directors: F. R. Palmer, K. R. Palmer and Alice C. Palmer, all of Hawley House, Blackwater, Hants.

TINDALE ZINC EXTRACTION, LTD.—Registered as a private company on August 2. Nom. capital of £47,250 in 4,500 10 per cent. preferred ordinary shares of £10 each and 4,500 deferred ordinary shares of 10s. each. To adopt an agreement with Sir Richard A. Pease, Bt., E. Bury, F. W. Walker, H. Greener, W. E. Donald, C. E. Pease, H. Ward Boys, and E. A. Barker, to exploit, develop and turn to account the refuse heaps and other property and assets mentioned in the said agreement, to extract and treat the ores and other contents of the said refuse heaps, and to carry on any metallurgical or chemical operations in relation thereto, etc. The directors, each with 250 deferred shares, are: Sir Richard A. Pease, Bt., 97, Northgate, Darlington; E. Bury, G. Lawson, C. H. Roberts.

UNITED COPPER MINES, LTD.—Registered as a public company on August 4, with a nom. capital of £1,000 in 2s. shares. To enter into an agreement with Trinidad National Petroleum Co., Ltd. (in liquidation), to acquire lands containing or supposed to contain copper, lead, tin, iron, silver, gold, asbestos, sulphur, coal, bitumen, oil, clay, or other minerals or substances, etc. The directors, each with 100 shares, are: E. H. Strickland, 34, Highbury Place, N.5, produce merchant; J. S. Ross.

British Industries Fair

ASSOCIATIONS in the chemical trades have been asked by Mr. Douglas Hacking, M.P., Parliamentary Secretary to the Department of Overseas Trade, to co-operate in connection with the British Industries Fair, which is to be held simultaneously in London and Birmingham next year from February 18 to March 1.

"Thanks largely to the help which we received from trade Associations and from other representative bodies, the Fair held last February," Mr. Hacking writes, "achieved a decisive success, the number of exhibitors, the exhibiting area occupied, and the attendance of buyers from overseas and home, surpassing all previous figures. I confidently expect that the attendance of buyers from overseas and home will exceed the record figures of last year, and you will agree with me that it is of great importance that these visitors should find the display thoroughly representative of the best that Britain can produce. The growth in size, prestige and goodwill of this National Fair is contributing year by year to the gradual recovery by this country of its former prosperity. It can, however, continue to play its part in the country's welfare only so long as it enjoys the support of the representative industrial and commercial organisations of the United Kingdom."

Sir E. A. Brotherton Purchases Gosse Manuscripts

COLONEL SIR EDWARD ALLEN BROTHERTON, of Brotherton and Co., Ltd., Leeds, has just added to his valuable collection of manuscripts the literary papers belonging to the late Sir Edmund Gosse. Among these papers were formerly a number of Swinburne MSS., but many of these, and perhaps all, were sold at the sale by auction, in July, of a portion of the late Sir Edmund Gosse's effects. No Swinburne MSS. were then acquired by Sir Edward Brotherton. The collection has not yet been unpacked, but it is understood it is not a Swinburne collection.